National Pollutant Discharge Elimination System
FACT SHEET for
ArcelorMittal Steel USA Inc. Indiana Harbor East
October 2011

Indiana Department of Environmental Management

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Permittee:	ArcelorMittal Steel USA Inc. (formerly Ispat Inland Steel Company) Indiana Harbor East 3210 Watling Street East Chicago, Lake County, IN 46312
Existing Permit Information:	Permit Number: IN0000094 Expiration Date: May 31, 2001
Receiving Stream:	Indiana Harbor Ship Canal, Indiana Harbor, and an unnamed tributary to the Grand Calumet River
Source Contact: **Source Address:**	Mr. Kevin Doyle, Manager-Environmental 3001 Dickey Road East Chicago, Indiana 46312
Proposed Action:	Permit Renewal Date Application Received: 11/6/2000
Source Category	NPDES Major – Industrial
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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT PROGRAM

FACT SHEET
for
NPDES Permit No. IN 0000094

ArcelorMittal Steel USA, Inc. - Indiana Harbor East
3210 Watling Street
East Chicago, IN 46312
Lake County

ORGANIZATION OF FACT SHEET

A. Introduction

Development of a Fact Sheet for NPDES permits is required by Title 40 of the Code of Federal Regulations, Section 124.8 and 124.6, as well as requirements in the Indiana Administrative Code (IAC) 327, Section 5. This document fulfills the requirements established in those regulations by providing the information necessary to inform the public of actions proposed by the Indiana Department of Environmental Management, as well as the methods by which the public can participate in the process of finalizing those actions.

The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines and other treatment-technology based standards, existing effluent quality, in-stream biological, chemical, and physical conditions, and the allocations of pollutants to meet the Indiana State Water Quality Standards.

Technology Based Effluent Limits are required by Section 301(b) of the Clean Water Act. Many of these have already been established by U.S. EPA in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the Commissioner may establish technology-based limits based on best professional judgment (BPJ).

IDEM evaluates the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations are used to develop these limits based on the pollutants that have been detected in the discharge and the receiving water's characteristics. In accordance with 327 IAC 5-1.5-69, a wasteload allocation (WLA) is the portion of a receiving water's loading capacity that is allocated to one (1) of its existing or future point sources of pollution. In the absence of a TMDL approved by EPA under 40 CFR 130.7 or an assessment and remediation plan developed and approved in accordance with 327 IAC 5-2-11.4(a), a WLA is the allocation for an individual point source, that ensures that the level of water quality to be achieved by the point source is derived from and complies with all applicable water quality standards.

The need for water-quality-based limits is determined by comparing the wasteload allocation for a pollutant to a measure of the effluent quality. The measure of effluent quality is called PEQ-Projected Effluent Quality. This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method, the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. A PEQ is calculated by multiplying the highest measured value by a statistical factor that accounts for effluent variability and limitations associated with small data sets. For example, if only one sample exists, the factor is 6.2, for two samples – 3.8, for three samples 3.0, etc. The factors continue to decline as the sample size increases. If the pollutant concentrations are fairly constant, but the data set is small, these factors may make the PEQ appear larger than it would be shown to be if more sample results existed.

In addition to the reasonable potential approach detailed above EPA has provided additional guidance to IDEM on determining the need for water quality based effluent limits at the final

outfall using TBELs determined appropriate at an internal outfall. This approach is separate from the RPE statistical analysis done during the modeling phase of permit development. Once the TBELs are calculated these are then compared to the WQBELs using the allowed mass calculated for the TBELs. If the TBELs calculated mass exceed the WQBELs mass then there is a reasonable potential to exceed a water quality criterion and WQBELs are required at the final outfall.

B. Summary of Major Changes to the Permit from the last issuance

a. Outfalls 001, 602, and storm water outfalls 020, 021, and 022 have been removed from this permit and included in a new NPDES permit; IN0063355.

b. Changes in wastewater sources to Outfalls

Outfall 005:	Previously was an emergency overflow from the process wastewater treatment and Plant Recycle System tributary to Outfall 014. The Outfall has been sealed with concrete and will be removed from the permit.
Outfall 018:	The addition of storm water from the area around the Indiana Harbor Coke Company Coke Ovens.
Internal Outfall 418:	Removed from permit. Internal Outfall 418 was the discharge point from a wet bottom ash handling system located at the No. 4 AC Power Station, which has been permanently shuttered.
SW-11, 12, 13, 14:	These areas only have sheet flow and the drainage is not associated with any industrial activity, therefore, they are not regulated by the permit. These locations remain in the SWP3 as a best management practice to ensure that the areas continue to be reviewed and policed. They are mentioned here for consistency with the permittee's SWP3.
Outfall 002:	Outfall 002, formerly a point source discharge of storm water in Plant 3, has been sealed off and no longer exists. Outfall 002 has been removed from the permit. This area will be designated as a potential drainage area in the SWP3.

c. Changes in Limitations per Outfall

For a detailed discussion on new limits, see Section F.7; Antidegradation.

Outfall 011:	New Mercury limitations More stringent TRC limitations
Outfall 613:	BAT Phenol limitations applied
Outfall 014:	New Mercury limitations

More stringent Lead limitations
More stringent Zinc (Daily Maximum) limitation
More stringent TRC limitations
Report only requirements for Ammonia (as N) and Phenols

Outfall 018: New Lead limitations
New Zinc limitations
New Mercury limitations
More Stringent TRC limitations

Outfall 019: New TRC limitations

d. Changes in Monitoring Requirements per Outfall

Free Cyanide monitoring is replacing Total Cyanide monitoring. For a detailed discussion, see Section F.4; Water Quality Based Effluent Limitations.

Outfall 011: Flow monitoring increased to daily
Temperature effluent monitoring increased to 2 X week
Temperature intake monitoring added
Thermal Discharge reporting increased to 2 X Week

Outfall 014: Flow monitoring increased to daily
Temperature effluent monitoring increased to 2 X week
Thermal Discharge reporting increased to 2 X Week

Outfall 518: New monitoring requirements for Selenium

Outfall 018: Flow monitoring increased to daily
Temperature intake monitoring added
Thermal Discharge reporting increased to 2 X Week
New monitoring requirements for Selenium

Outfall 019: Monitoring for all parameters increased to 1 X Month

C. Use Classifications

The East Branch Grand Calumet River, Indiana Harbor Canal, and Indiana Harbor are designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The Indiana Harbor is designated as an industrial water supply. The Indiana portion of the open waters of Lake Michigan is designated for full-body contact recreation; shall be capable of supporting a well-balanced warm water aquatic community; is designated as salmonid waters and shall be capable of supporting a salmonid fishery; is designated as a public water supply; is designated as an industrial water supply; and, is designated as an outstanding state resource water. These waterbodies are identified as waters of the state within the Great Lakes system. As such, they are subject to the water quality standards and associated implementation procedures specific to Great Lakes system dischargers as found in 327 IAC 2-1.5, 327 IAC 5-1.5, and 327 IAC 5-2.

Section 303(d) of the Clean Water Act requires states to identify waters, through their Section 305(b) water quality assessments, that do not or are not expected to meet applicable water quality standards with federal technology based standards alone. States are also required to develop a priority ranking for these waters taking into account the severity of the pollution and the designated uses of the waters. Once this listing and ranking of impaired waters is completed, the states are required to develop Total Maximum Daily Loads (TMDLs) for these waters in order to achieve compliance with the water quality standards. Indiana's 2010 303(d) List of Impaired Waters was developed in accordance with Indiana's Water Quality Assessment and 303(d) Listing Methodology for Waterbody Impairments and Total Maximum Daily Load Development for the 2010 Cycle. As of the 2010 303(d) List of Impaired Waters, the following impairments were listed for waters to which the permittee discharges:

Table 1

Assessment Unit	Waterbody	Impairments	ArcelorMittal East Outfalls
INK0346_04	East Branch Grand Calumet River	Impaired Biotic Communities, Oil and Grease, *E. coli* and PCBs in Fish Tissue	019 (Discharge to Unnamed Tributary)
INC0163_T1001	Indiana Harbor Canal	Impaired Biotic Communities, Oil and Grease, *E. coli* and PCBs in Fish Tissue	007
INC0163G_G1078	Indiana Harbor	Free Cyanide, Mercury in Fish Tissue and PCBs in Fish Tissue	011, 014 and 018
INM00G1000_00	Lake Michigan	Mercury in Fish Tissue and PCBs in Fish Tissue	None

D. Great Lakes System Discharger Requirements

The permittee discharges to a waterbody that has been identified as a water of the state within the Great Lakes system and that is a tributary to an outstanding state resource water (OSRW). In addition to OSRW antidegradation implementation procedures under 327 IAC 5-2-11.7, it is subject to other NPDES requirements specific to Great Lakes system dischargers under 327 IAC 2-1.5 and 327 IAC 5-2-11.2 through 327 IAC 5-2-11.6. These rules address water quality standards applicable to dischargers within the Great Lakes system and reasonable potential to exceed water quality standards procedures.

As required by 327 IAC 5-2-11.3(b)(2), Part II.A.16. of the renewal permit specifically prohibits the permittee from undertaking deliberate actions that would result in new or increased discharges of BCC's or new or increased permit limits for non-BCC's, or from allowing a new or increased discharge of a BCC from an existing or proposed industrial user, without first proving that the new or increased discharge would not result in a significant lowering of water quality, or by submission and approval of an antidegradation demonstration to the IDEM.

E. Description of Facility

1. General

ArcelorMittal Steel USA Inc. – Indiana Harbor East facility is an integrated iron/steel manufacturing facility. The industrial processes conducted at this facility include the manufacture of iron, the manufacture of steel, rolling mill operations, and finishing operations. In addition to the steel manufacturing processes, there are additional support operations that include power generation, wastewater treatment, recycling, laboratory, and research. The wastewater treatment system has an average discharge of approximately 112 MGD and has been given a Class D industrial wastewater treatment plant classification in accordance with 327 IAC 5-22.

Table 2

Guideline 40 CFR 420	**Description**	**Average Daily Production**
420.10	**Cokemaking**	**N/A**
420.20	**Sintering**	**N/A**
420.30	**Ironmaking** No. 5 & 6 Blast Furnaces No. 7 Blast Furnace	**17921.3** (5501.4) (12419.9)
420.40	**Steelmaking** No. 4 BOF No. 2 BOF	**17151.1** (9469.7) (7681.4)
420.50	**Vacuum Degassing** RHOB	**7859.8** (7859.8)
420.60	**Continuous Casting** No. 1 Caster	**17145.7** (9464.3)

	2 BOF Casters	(7681.4)
420.70	**Hot Forming** 80" Hot Strip Mill	**17636.8** (171636.8)
420.80	**Salt Bath Descaling**	**N/A**
420.90	**Acid Pickling** 4 &5 Pickle Lines	**11654.4** (11654.4)
420.100	**Cold Forming** 80" Tandem Mill 56" Tandem Mill #29 Temper Mill #28 Temper Mill	**24634.2** (9359.5) (3933.3) (5476.1) (5865.3)
420.110	**Alkaline Cleaning** Alkaline Cleaning	**1294.9** (1294.9)
420.120	**Hot Coating** #5 Galvanize	**1294.9** (1294.9)

2. Existing Discharges

As described below, the permittee has several outfalls discharging to the Indiana Harbor Ship Canal, Indiana Harbor and the Grand Calumet River. These discharges are limited by a combination of 40 CFR Part 420, ambient water quality standards adopted by the Indiana Water Pollution Control Board, and limitations from the previous permit whichever are the more stringent.

Attachment I is a facility map showing the approximate locations of the active process and cooling water outfalls. Attachment II is a series of manufacturing process flow diagrams. Attachment III is an overall diagram of treatment and recycle systems. Attachment VI is a series of treatment system line drawings.

The outfall number, latitudes and longitudes, receiving water, flow, and sources of water discharged are presented below for each outfall. These are the flow values which were used in the modeling process to determine the PELs and in calculating mass limits at the corresponding final outfalls.

a. Outfall 003 – Indiana Harbor Ship Canal Emergency Overflow

Latitude: 41° 39' 27" Longitude: -87° 27' 18"

Outfall 003 is the emergency overflow from the process wastewater treatment and Plant Recycle System tributary to Outfall 014. There is normally no discharge from this outfall.

b. Outfall 007 – Indiana Harbor Ship Canal 0.0037 MGD

Latitude: 41° 39' 38" Longitude: -87° 27' 14"

Outfall 007 is a storm water outfall. There is also a low volume discharge from groundwater infiltration. Outfall 007 is a 48-inch opening with a V-notch weir.

c. Outfall 008 – Indiana Harbor Ship Canal Emergency Overflow

Latitude: 41° 39' 50" Longitude: -87° 26' 46"

There is normally no discharge from this outfall. As currently configured, any discharges would be the result of emergency overflows of non-contact cooling water, boiler blowdown, and zeolite backwash from the No. 2 AC power station.

d. Outfall 011 – Indiana Harbor Turning Basin 84.7 MGD

Latitude: 41° 39' 56" Longitude: -87° 26' 23"

The discharge from Outfall 011 includes non-contact cooling water from Blast Furnaces 5 and 6, the No. 2 AC Power Station, and the Sinter plant; boiler blow down from the No. 2 AC Power Station and zeolite rinse water; and some storm water runoff.

Non-contact cooling water is chlorinated and de-chlorinated prior to discharge whenever intake water temperature is above 55 °F.

e. Outfall 013 – Indiana Harbor Turning Basin Emergency Overflow

Latitude: 41° 39' 55" Longitude: -87° 26' 14"

This outfall is an emergency overflow from the Terminal Treatment Plant – West, which is part of the Plant Recycle System tributary to Outfall 014.

f. Outfall 014 – Indiana Harbor Turning Basin 11.5 MGD

Latitude: 41° 40' 02" Longitude: -87° 26' 22"

The discharge from Outfall 014 is comprised of the blow down from the Main Plant Recycle System. The system includes process and cooling water from hot forming operations (80" hot strip mill); pickling operations (Nos. 4 and 5 pickle lines, continuous anneal line); cold rolling mills (56" and 80" tandem mills; Nos. 27, 28, and 29 temper mills); alkaline cleaning lines; hot coating lines (No. 5 hot dip galvanizing line); the No. 2 Steel Plant (i.e. BOF); Nos. 5 and 6 blast furnaces; the No. 2 continuous caster; treated sanitary wastewaters (Nos. 1, 2, and 3 sewage treatment plants); and storm water runoff.

The No. 1 Sewage Treatment Plant (STP) treats waste from the locker rooms at the No. 2 Steel Plant and Casters. Treatment consists of equalization in a settling chamber, an Imhoff tank, trickling filters, secondary clarifiers, and disinfection prior to discharge into the Main Plant Recycle System. The No. 1STP has the capability to treat up to 2.6 MGD but historical flows are approximately 1.4 MGD.

The No. 2 Sewage Treatment Plant (STP) treats waste from the locker rooms at the No. 3 Cold Strip Mill. Treatment consists of settling chambers, trickling filter, secondary clarifier, and disinfection prior to discharge into the Terminal Treatment Plant North Lagoon. The No. 2STP has the capability to treat up to 1.6 MGD but historical flows are approximately 0.5 MGD.

The No. 3 Sewage Treatment Plant (STP) treats waste from the locker rooms at Pugh Ladle Repair, the Lime Plant, and the No. 4 Steel Plant and Caster. Treatment consists of a clarifier/digester, settling chamber, trickling filter, secondary clarifier, and disinfection prior to discharge into the Main Plant Recycle System. The No.3 STP has the capability to treat up to 2.2 MGD but historical flows are approximately 0.46 MGD.

ArcelorMittal Steel operates three terminal treatment plants (North, East, and West) as part of the main wastewater recycle system. The terminal treatment plants are described below.

Terminal Treatment Plant North (TTPN):

TTPN is comprised of a settling basin, a cooling tower, and a pump station located at the north end of the cold strip mill. The discharge from TTPN is recycled directly back to the mill as process and cooling water. TTPN receives process and cooling water from the finishing end of the No. 3 Cold Strip. Emergency overflow from TTPN is directed to a storm water retention basin, from which there is no discharge to surface waters.

Terminal Treatment Plant East (TTPE):

TTPE consists of two scalping tanks and three basins equipped with oil skimmers and a cooling tower. All the effluent form TTPE is discharged to No. 1 and No. 6 Pump Houses and is then recycled back to the mills as process and cooling water. The following mills discharge to TTPE:

The 80" hot strip mill is equipped with four scale pits and four large diameter clarifiers for preliminary removal of heavy solids and oil prior to discharge to the TTPE scale pits.

No. 3 cold strip mill process wastewaters (cold rolling, alkaline cleaning, and hot coating lines) are treated in a clarifier and a dissolved air flotation unit to remove emulsified oils and then are combined with 80" hot strip mill wastewater for additional treatment in large diameter clarifiers prior to discharge to the TTPE scale pits.

Pickling rinse water from the Nos. 4 and 5 pickle lines are neutralized with caustic at the No. 3 cold strip neutralization facility prior to discharge to the TTPE scale pits. Rinse water from the CAL line discharges directly to the TTPE scale pits.

Solids from the scale pits and settling basins are removed by either dragouts or clam shell buckets. They are passively dewatered and most are returned to the process via the Sinter Plant. Solids that cannot be used in the Sinter Plant and underflow from the clarifiers are solidified using lime fines or other appropriate material for off-site disposal.

Terminal Treatment Plant West (TTPW):

TTPW consists of two scalping tanks and two settling basins equipped with oil skimmers and a cooling tower. Most of the effluent from the TTPW is discharged to the No. 1 and No. 6 Pump Houses and is then recycled back to the mills as process and cooling water. The remaining water is the only blow down from the Main Plant Recycle System and constitutes the discharge from Outfall 014.
Wastewaters from the Plant 1 coating lines are treated in scale pits for preliminary removal of heavy solids and oil prior to discharge to the TTPW scalping tanks.

Gas cleaning waters from the No. 2 Steel Plant (BOF) are treated in thickeners for solids removal and recycled back to the No. 2 Steel Plant scrubbers. A small blow down from the scrubber system is treated in a blow down clarifier prior to discharge to the TTPW.

The No. 3 continuous caster has a closed loop cooling water system for mold and machine cooling and a separate treatment and recycle system for spray water consisting of a roughing pit, scale pit with oil removal, and high rate multi-media filtration followed by a cooling tower. Filter backwash is solidified using lime fines or other appropriate material for off-site disposal. The caster recycle system blows down a small amount of filtered water to the TTWP.

Treated blow down from the No. 5 and 6 blast furnace scrubbing system is discharged to the TTWP via internal Outfall 613. The process water and blow down treatment are described under Outfall 613.

Clamshell buckets are used to remove solids from scale pits and settling basins. The solids are passively dewatered and most are returned to the process via the Sinter Plant. Solids that cannot be used in the Sinter Plant are solidified using lime fines or other appropriate material for off-site disposal. Sludge from the No. 2 steel plant thickeners and blow down clarifier is dewatered in a recessed chamber filter press. Filtrate is returned to the thickeners and dry filter cake is either recycled back to the process through the briquetting plant or disposed of off-site.

g. Outfall 613 – Indiana Harbor Turning Basin via Outfall 014 0.091 MGD

Latitude: 41° 39' 58" Longitude: -87° 26' 11"

The gas cleaning and cooling system at Nos. 5 and 6 blast furnaces is a high rate process water recycle system that supplies water to clean and cool blast furnace gas in a venturi scrubber, gas cooler, and high pressure Bischoff scrubber. The system blows down a small amount of water to a blow down treatment facility that discharges to the TTPW via internal Outfall 613.

Gas cleaning and cooling water for the No. 5 and 6 blast furnaces is treated in large diameter thickeners and settling basins for solids removal and recycled directly back to the blast furnace venturi gas scrubbers and gas cooler. The thickener underflow is dewatered in a recessed

chamber filter press. Filtrate is returned to the thickeners and dry cake is returned to the process via the briquetting plant.

The blow down from the Nos. 5 and 6 blast furnace recycle system is treated through clarifiers for solids removal and carbon filtration to control phenols and is then discharged to the Main Plant Recycle System through internal Outfall 613.

h. Outfall 018 – Indiana Harbor Turning Basin 15.9 MGD

Latitude: 41° 40' 29" Longitude: -87° 26' 08"

The discharge from Outfall 018 is comprised of non-contact cooling water; treated effluents from the No. 4 Steel Plant (BOF), vacuum degasser (RHOB), and No. 1 continuous caster (internal Outfall 618); treated effluents from the No. 7 blast furnace gas scrubber system, (internal Outfall 518); cooling tower blow down and low-volume wastes from the No. 5 boilerhouse/North Lake Energy (No. 17 Turbine) and the CokeEnergy co-generating facility; storm water runoff; and storm water runoff from the Indiana Harbor Coke Company.

Non-contact cooling water is chlorinated and de-chlorinated prior to discharge when intake water temperature is above 40° F for zebra and quagga mussel control.

Low volume waste sources from No. 5 boilerhouse/North Lake Energy, and CokeEnergy are defined at 40 CFR 423.11(b) and are comprised primarily of water softener regeneration, rinse water, and boiler blow down, and reverse osmosis reject water.

Process water and blow down treatment for the No. 4 Steel Plant (BOF), vacuum degasser (RHOB), and No. 1 continuous caster is described under Outfall 618. Process water and blow down treatment for the No. 7 blast furnace is described under Outfall 518.

i. Outfall 518 – Indiana Harbor Turning Basin via Outfall 018 0.044 MGD

Latitude: 41° 40' 50" Longitude: -87° 25' 30"

Outfall 518 is the internal outfall for the No. 7 blast furnace gas scrubbing system. Treated waste waters are limited and monitored prior to mixing with non-contact cooling water and discharged to the Indiana Harbor via Outfall 018.

The gas cleaning system for the No. 7 blast furnace is a high rate process water recycle system that supplies water to clean the blast furnace off-gas through a high energy gas scrubber. Dirty water from the gas scrubber is treated through two large diameter thickeners and a cooling tower and then recycled back to the scrubber. Blow down from the scrubber system is sent to the No. 7 blast furnace slag granulation system. The thickener underflow is dewatered in a recessed chamber filter press. Filtrate is returned to the thickeners and dry cake is sent off-site for disposal.

Excess water from the No. 7 slag granulation system is sent to the No. 7 blast furnace blow down treatment plant, which consists of pH adjustment, cyanide precipitation, and alkaline chlorination. The discharge from the No. 7 blast furnace blow down treatment system constitutes internal Outfall 518.

j. Outfall 618 – Indiana Harbor Turning Basin via Outfall 018 0.57 MGD

Latitude: 41° 40' 32" Longitude: -87° 25' 52"

Outfall 618 is the internal outfall for the No. 4 Steel Plant (BOF), the vacuum degasser (RHOB), and the No. 1 continuous caster process water systems. Treated wastewaters are limited and monitored prior to mixing with non-contact cooling water and discharged to the Indiana Harbor via Outfall 018.

The gas cleaning system for the No. 4 Steel Plant (BOF) is a high rate process water recycle system that supplies water to clean BOF off-gas through four venturi scrubbers. Gas cleaning water is treated in large diameter thickeners for solids removal and most of the water is returned directly back to the venturi scrubbers. The remainder of the water is blown down to the No. 4 Steel Plant blow down filtration facility for treatment prior to discharge to internal Outfall 618. The thickener underflow is dewatered in a recessed chamber filter press. Filtrate is returned to the thickeners and dry cake is returned to the steel making process via the briquetting plant or disposed of off-site.

The RHOB water system is a high rate process water recycle system that supplies cooling water to the vacuum degasser barometric condensers. Discharge from the condensers returns to a cooling tower and is then recycled back to the condensers. A side stream of water is treated through two inclined plate separators for solids removal and then returned to the system. The underflow from the separators is discharged to the No. 4 Steel Plant thickeners. This is the only blow down from the RHOB water treatment system.

The No. 1 continuous caster water system is a high rate recycle system that supplies water to the caster and scarfer for machine cooling sprays, roll cooling, scale breaking, and flume flushing. A separate system for machine and mold cooling consisting of a noncontact cooling tower and heat exchangers blows down to the caster system. Treatment consists of a roughing pit, a scale pit with oil recovery, high rate multi-media filtration, and a cooling tower. A small amount of water is blown down from the caster system to the No. 4 Steel Plant thickeners. A clamshell bucket is used to remove solids from the roughing and scale pits. The solids are passively dewatered and returned to the process via the Sinter Plant. Filter backwash is stabilized with lime fines or other appropriate material and sent off-site for disposal.

The Steel Plant blow down filtration facility treats the combined blow down from the No. 4 Steel Plant (BOF), the No. 1 continuous caster, and RHOB through high rate multi-media filters prior to discharge from internal Outfall 618. Blow down from the filtration facility is from the overflow of the No. 4 Steel Plant thickeners. Filer backwash is returned to the thickeners and processed with the thickener flow.

k. Outfall 019 – Unnamed Tributary to the Grand Calumet River 0.1 MGD

Latitude: 42° 39' 32" Longitude: -87° 26' 10"

The discharge from Outfall 019 is non-contact cooling water and storm water runoff from ArcelorMittal Steel's research facility located on Columbus Drive. The research center receives water from the City of East Chicago. The outfall discharges to a drainage ditch tributary to the Grand Calumet River.

l. Water Intake Discharges

Intake screen backwash from the Main Intake/ No. 2 Pump House and No. 7 Pump House is returned to Lake Michigan.

m. Storm Water Only Discharges

Storm water discharges from Outfall 007, SW-1, SW-2, SW-3, SW-4, SW-5, SW-6, SW-7, SW-8, SW-9, and SW-10 are regulated by this permit. The receiving water bodies are the Indiana Harbor Turning Basin, and Indiana Harbor Ship Canal.

F. Development of Proposed Effluent Limitations and Special NPDES Permit Conditions

1. Clean Water Act Requirements

Section 402 of the Clean Water Act (CWA) establishes a National Pollutant Discharge Elimination System (NPDES) permit program. The NPDES permit program is designed to limit the discharge of pollutants into navigable waters of the United States through a combination of various requirements including technology-based and water quality-based effluent limitations. The CWA provides that the Administrator of U.S. EPA, or his designee, must concur with major permits issued by delegated state agencies. The NPDES permit program for Indiana was delegated to the Indiana Department of Environmental Management by U.S. EPA.

Sections 301, 304, 306 and 307 of the CWA also provide that U.S. EPA must promulgate national effluent limitations guidelines and standards of performance for major industrial categories for three classes of pollutants: (1) conventional pollutants (e.g., Total Suspended Solids, Oil and Grease, Biochemical Oxygen Demand and pH); (2) toxic pollutants (e.g., toxic metals such as Chromium, Lead and Zinc; toxic organic pollutants such as Naphthalene and Tetrachloroethylene); and (3) non-conventional pollutants (e.g., Ammonia-N, Fluoride and Phenols (4AAP)).

Six types of effluent limitations guidelines and standards must be promulgated for each major industrial category:

Abbreviation	Effluent Limitation Guideline or Standard
BPT	Best Practicable Control Technology Currently Available
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
NSPS	New Source Performance Standards
PSES	Pretreatment Standards for Existing Sources
PSNS	Pretreatment Standards for New Sources

The pretreatment standards are applicable to industrial facilities with wastewater discharges to publicly owned treatment works (POTWs) which generally are municipal wastewater treatment plants. The effluent limitations guidelines and new source performance standards are applicable to industrial facilities with direct discharges to navigable waters. Thus, for purposes of the proposed NPDES permit, only the first four types of effluent limitations guidelines and standards are applicable to ArcelorMittal Indiana Harbor East. Section 301 of the CWA, as amended by the Water Quality Act of 1987, requires that BPT effluent limitations were to have been achieved by July 1, 1977. BAT effluent limitations for toxic pollutants, BAT effluent limitations for non-conventional pollutants, and BCT effluent limitations for conventional pollutants must be achieved within three years from date of promulgation but no later than March 31, 1989. Section 402(a)(1) of the CWA provides that in the absence of promulgated effluent limitations guidelines or standards, the Administrator, or his designee, may establish effluent limitations for specific dischargers on a case-by-case basis. U.S. EPA regulations provide that these limits may be established using "best professional judgment" (BPJ) taking into account proposed effluent limitations guidelines and standards and other relevant scientific, technical and economic information.

The effluent limitations guidelines and standards applicable to the permittee are found at 40 CFR Part 420 for ironmaking, steelmaking, vacuum degassing, continuous casting, hot forming, acid pickling, cold forming, alkaline cleaning and hot coating operations. 40 CFR Part 420 was promulgated in May 1982, and amended in May 1984. 40 CFR 420 was recently updated with the final revisions to this section signed April 30, 2002, and published in the Federal Register on October 17, 2002.

2. Technology-Based Effluent Limitations

40 CFR 433 Metal Finishing Point Source Category:

The federal effluent guidelines contained in 40 CFR 433; Metal Finishing, are not applicable to discharges from this facility. The ArcelorMittal Indiana Harbor East facility utilizes a process called "hot dip galvanizing". On the one hot dip galvanizing line at Indiana Harbor East, cold-rolled steel sheet is cleaned with a mild sulfuric acid solution, followed by alkaline cleaning to remove residual acid and iron salts. A fluxing agent is applied to the cleaned sheet and then it is immersed in a molten zinc bath where the sheet surface is coated with zinc. The thickness of the zinc coating is controlled by "air knives" that apply high pressure air to the sheet surface as it leaves the molten zinc bath. The sheet is then air dried.

Certain automotive customers require that the galvanized sheet be passivated with a chromate solution to prevent light oxidation of the zinc coating. The chromate solution is not applied on all galvanized coils. The solution is contained in two, 55-gallons drums located near the end of the line. Each drum is equipped with sprays to apply the solution. The small amount of excess chromate solution (overspray) is collected in drip pans that are positioned under the sprays and is disposed of off-site when a sufficient quantity is collected. There is no process water application in this part of the process and there is no process wastewater generated.

The chromate passivation step is not a coating or plating operation in the sense of the effluent limitations guidelines for metal finishing (i.e., chromium plating) because the chromate solution in the hot dip galvanizing process is not applied to or chemically bound to the base metal (steel).

The hot dip galvanizing process is regulated by 40 CFR Part 420, Subpart L - Hot Coating Category (see 420.120 for applicability). Footnote 1 to the BAT effluent limitations guidelines states that the ELGs for hexavalent chromium shall be applicable only to hot dip galvanizing operations that discharge wastewaters from the chromate rinse step. Thus, a permit limit for hexavalent chromium is not necessary in the case of the hot dip galvanizing line at Indiana Harbor East. However, for the purpose of confirmation, 2 X Year monitoring for Hexavalent Chromium has been included at Outfall 014.

40 CFR 423 Steam Electric Power Generating Point Source Category:

The federal effluent guidelines contained in 40 CRF 423; Steam Electric Power Plants, are not applicable to discharges from this facility. The provisions of 40 CFR 423 are applicable only to discharges resulting from the operation of a generating unit by an establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel (coal, oil, or gas). ArcelorMittal generates power solely for use at ArcelorMittal Indiana Harbor facilities; East and Long Carbon.

> No. 2 AC Power Station; discharges via 011: Discharges consist of non contact cooling water and low volume boiler blow down. No treatment of these waste streams takes place prior to discharging via Outfall 011.
>
> CokeEnergy Facility; discharges via Outfall 018: The Indiana Harbor Coke Company is a heat recovery coke facility (previously referred to as the HRCF), consisting of coke ovens, charging/pushing units, quench towers, and heat recovery boilers for steam production. The coke ovens are for heat recovery, they are not by-product recovery ovens. All petroleum by-products are burned for heat and there is no process wastewater generated by the facility. The source of non-contact cooling water for both the Indiana Harbor Coke Company and the CokeEnergy facility is the ArcelorMittal Indiana Harbor East No. 7 Intake. Noncontact cooling water from the Indiana Harbor Coke Company is used to quench coke. As part of this NPDES permit renewal, the permittee has applied to periodically discharge storm water from the area around the Indiana Harbor Coke Company Coke Ovens through Outfall 018. This will occur only during periods of intense rainfall, when conditions are such that the quenching operation cannot consume the entire volume.

The CokeEnergy facility converts the steam produced at the Indiana Coke Company boilers to electric power using a steam extraction turbine generator. Discharge from the CokeEnergy facility to Outfall 018 consists of non-contact cooling tower blow down and low volume wastes such as service filter backwash, water softener regenerant, and RO reject water. Boiler blow down from Coke Energy is discharged to the quenching operation.

No. 3 AC Power Station; previously discharged via Outfall 002: No. 3 AC Power Station was permanently shuttered in the late 1980's.

No. 4 AC Power Station; previously discharged via Outfall 018: No. 4 AC Power Station has been permanently shuttered in 1999. However, a condenser water concrete sump located at this shuttered facility still receives process and non contact water from the No. 7 blow down treatment plant, No. 5 Boilerhouse, No. 17 Turbine (NorthLake Energy), and CokeEnergy. This concrete sump discharges to the Indiana Harbor Ship Canal via Outfall 018.

North Lake Energy (No. 17 Turbine); discharges via Outfall 018: North Lake Energy converts steam produced at the No. 5 Boilerhouse (including steam from the new 504 boiler) to electric power using a steam extraction turbine generator. Discharge from North Lake Energy to Outfall 018 consists of cooling tower blow down and low volume wastes such as service filter backwash, water softener regenerant, and RO reject water. The source of non-contact cooling water for North Lake Energy is the ArcelorMittal Indiana Harbor East No. 7 Intake.

40 CFR 420 Iron and Steel Manufacturing Point Source Category:

Attachment IV presents the derivation of the applicable technology-based effluent limitations guidelines and standards for the permittee for each process wastewater outfall. For each of the basic steelmaking and steel finishing operations, the NPDES production rates developed by the permittee were used in combination with the BPT, BAT or BCT effluent limitations guidelines or NSPS from 40 CFR Part 420 to compute the allowable federal technology based discharges of the regulated pollutants.

Following is a brief description of the application of the technology-based effluent limitations guidelines and standards by process operation:

a. #5 & #6 Blast Furnaces: Internal Outfall 613 - Ironmaking

Table 3
Internal Outfall 613
Technology-Based Effluent Limitations and Standards
40 CFR 420.32/33(a)
Effluent Limitations in lbs/day

Pollutant	BPT/BAT – Iron Blast Furnace	
	30-Day Average (lbs/day)	Daily Maximum (lbs/day)
Total Suspended Solids	286.07 (----)	860.42 (----)
*Ammonia - N	32.13 (100)	96.38 (300)
Total Cyanide	9.57 (8.73)	19.25 (17.41)
*Phenols (4AAP)	0.32 (1.50)	0.64 (3.00)
TRC**	-----	----- (----)
Total Lead	0.96 (----)	2.89 (----)
Total Zinc	1.44 (----)	4.34 (----)

Limits in parenthesis ( ) are the limits the current permit.

* Limits in the current permit are based on a 301(g) variance.

** TRC is not limited at Outfall 613 because the facility doesn't chlorinate at this outfall.

b. #7 Blast Furnace: Internal Outfall 518 - Ironmaking

Table 4
Internal Outfall 518
Technology-Based Effluent Limitations and Standards
40 CFR 420.34
Effluent Limitations in lbs/day

Pollutant	NSPS – Iron Blast Furnace	
	30-Day Average (lbs/day)	Daily Maximum (lbs/day)
Total Suspended Solids	108.80 (91.24)	290.63 (243.71)
Ammonia - N	72.53 (60.82)	217.60 (182.47)
Total Cyanide	7.25 (6.08)	14.51 (12.16)
Phenols (4AAP)	0.73 (0.61)	1.45 (1.22)
TRC	-----	3.63 (3.04)
Total Lead	2.18 (1.32)	6.53 (2.28)
Total Zinc	3.25 (2.73)	9.79 (8.21)
Oil & Grease	-----	72.53 (60.82)

Limits in parenthesis ( ) are the limits the current permit.

c. #4 BOF, #1 Caster, RHOB: Internal Outfall 618 – Steelmaking, Continuous Casting, & Vacuum Degassing

Table 5
Internal Outfall 618
Technology-Based Effluent Limitations and Standards
40 CFR 420.42/43(c), 420.62/63, 420.54
Effluent Limitations in lbs/day

Pollutant	30-Day Average (lbs/day)	Daily Maximum (lbs/day)
Total Suspended Solids	966.88 (360)	2892.32 (720)
Oil & Grease	147.64 (102)	442.93 (216)
Total Lead	3.70 (2.16)	11.08 (6.48)
Total Zinc	5.55 (3.50)	16.63 (10.50)

Limits in parenthesis ( ) are the limits the current permit.

d. 80" Hot Mill Strip, 2A Blooming Mill, 21" Bar Mill, 4&5 Pickle Lines, CAL and Normalizer, Pickling Line Fume Scrubbers, 56" & 80" Tandem Mills, #29 Temper Mill, #28 Temper Mill, #4 Aluminize and #3 & #5 Galvanize, Alkaline Cleaning, #2 BOF, #5 & #6 Blast Furnace

Outfall 014 – Hot Forming (Strip, Primary, and Section), HCl Pickling, Fume Scrubbers, Cold Rolling, Hot Coating, Alkaline Cleaning, BOF Steelmaking, Continuous Casting, Ironmaking

Table 6
Outfall 014
Technology-Based Effluent Limitations
40 CFR 420.72/77 (b)(1), 420.72/77(a)(2), 420.72/77(b)(1),
420.92/93 (b)(2), 420.92/93(b)(4), 420.102/103 (a)(2), 420.102/103(a)(4), 420.102/103(a)(5),
420.122/123 (a)(1), 420.112 (b), 420.42/43 (b)
420.64, 420.32/33 (a)
Effluent Limitations (lbs/day)

Pollutant	30-Day Average (lbs/day)	Daily Maximum (lbs/day)
Total Suspended Solids	8064.30 (6620)	20761.41 (17092)
Oil & Grease	*1919.35 (----)	5623.66 (4568)
Total Lead	15.31 (11.58)	46.03 (31.08)
Total Zinc	18.86 (14.91)	56.54 (44.69)
Naphthalene	-----	2.65 (1.80)
TCE	-----	3.96 (2.69)

Limits in parenthesis ( ) are the limits the current permit.

*Based on BPJ

3. 301(g) Variance

Section 301(g) of the Clean Water Act and 327 IAC 5-3-4(b)(2) allow for a variance from the applicable BAT requirements through the development of proposed modified effluent limitations (PMELs) for the non-conventional pollutants of ammonia, chlorine, color, iron, and total phenols (4AAP) provided the following conditions are met:

1. The proposed modified effluent limits (PMELs) will meet the categorical BPT effluent limits (Technology Based Effluent Limits) or applicable water quality based effluent limits (WQBEL), whichever are more stringent;

2. The PMELs will not result in any additional requirements on other point or non-point sources;

3. The PMELs will not interfere with the attainment or maintenance of water quality which will protect public water supplies, aquatic life, and recreational activities; and,

4. The PMELs will not result in the discharge of pollutants in quantities which may reasonably be anticipated to pose an unacceptable risk to human health or the environment because of bioaccumulation, persistency in the environment, acute toxicity, chronic toxicity (including carcinogenicity, mutagenicity, or teratogenicity, or synergistic properties).

On February 8, 1989, Inland Steel, former owner of this facility, was granted Section 301(g) variances for ammonia (as N) and phenols (4AAP) for discharges from the No. 2 Coke Plant and No. 11 Coke Battery (Outfalls 012 and 018). The 301(g) variance had been incorporated into the permit through a modification issued October 12, 1988 that became effective December 1, 1988, prior to the permit expiration date of February 28, 1989. The modification included limits for ammonia (as N) and phenols (4AAP) at Outfalls 012 and 018 based on the 301(g) variance that would apply if the variance became effective. In a letter dated July 23, 1993, Inland Steel withdrew the 301(g) variance for ammonia (as N) and phenols (4AAP) for the coke making wastewaters, due to the ability to meet BAT for coke making operations, and requested that a portion of the PMELs for ammonia (as N) for that variance be transferred to Internal Outfall 613 for the Nos. 5 & 6 blast furnaces in the permit renewal. In a letter dated March 28, 1994, Inland Steel also requested that a portion of the PMELs for phenols (4AAP) be transferred to Internal Outfall 613 for the Nos. 5 & 6 blast furnaces. The Nos. 5 & 6 blast furnaces were put into service in 1939 and 1942, respectively. The draft NPDES permit renewal dated July 14, 1995 that was public noticed July 26, 1995 deleted the variances for ammonia (as N) and phenols (4AAP) previously applicable to the No. 2 coke plant and the No. 11 coke battery (Outfalls 012 and 018) and portions of those PMELs were transferred to Internal Outfall 613(see Table 7). EPA Region V provided assistance in responding to comments on the draft permit in a letter dated September 29, 1995. A final draft permit dated February 23, 1996 was developed based on process changes and in response to comments on the draft permit. EPA Region V sent a concurrence letter dated March 7, 1996 on the final draft permit stating that it was okay to proceed with the reissuance of the permit. The final permit contained the same permit conditions for ammonia (as N) and phenols (4AAP) at Internal Outfall 613 as the draft permit that was

public noticed July 26, 1995. The final permit was issued June 4, 1996 with an effective date of July 1, 1996.

Outfall 613 is an internal NPDES permit compliance monitoring station for process water discharges from the Nos. 5 & 6 blast furnaces. Outfall 613 discharges to the Terminal Treatment Plant West, which in turn, discharges to the Main Plant Recycle System. Outfall 014 discharges a blow down from the Main Plant Recycle System to the Indiana Harbor Turning Basin.

ArcelorMittal requests the above effluent limits for Outfall 613 be continued as 301(g) effluent limits in the renewal NPDES permit. According to the permittee, there have been no changes in ArcelorMittal process operations or changes in Indiana Water Quality Standards or other regulatory programs since the 1996 permit was issued that would materially affect the conditions and circumstances under which the variances were granted initially and continued in the current NPDES permit. The proposed Section 301(g) effluent limits for Ammonia-N and Phenols (4AAP) would not represent an increase in authorized discharges of these compounds over currently permitted levels.

The categorical effluent limitation guidelines for ammonia (as N) and phenols (4AAP) which form the basis for the BPT and BAT effluent limits for discharges from Outfall 613 are found at 40 CFR 420.32(a) and 420.33(a), respectively. The generally applicable BAT and BPT limits have been calculated and are presented in Table 7.

Table 7
Nos. 5 & 6 Blast Furnaces
BPT, PMELs, BAT, WQBELs

	Ammonia-N (lbs/day)		Phenols (4AAP) (lbs/day)	
Limits (Outfall)	Monthly Avg	Daily Max	Monthly Avg	Daily Max
BPT (613)	590.85	1771.45	23.11	68.88
PMEL (613)	100	300	----	----
BAT (613)	32.13	96.38	0.32	0.64
WQBEL (014)	*340	*670	**7.00	**16.25

*The Ammonia (as N) WQBELs in Table 7 are based on the current applicable water quality criteria. The PMELs for ammonia (as N) are more stringent than the WQBELs for ammonia based on the current applicable water quality criteria.

**The Phenol (4AAP) WQBELs in Table 7 are the current permit limits for Outfall 014. The existing limits originate in the 1996 permit. The monthly average and daily maximum limits were based on 85% of the combined loadings for Outfalls 012 and 014 in the 1992 IDEM Grand Cal. /IHC WLA.

Indiana does not have numerical water quality standards for total phenols (4AAP) applicable to the Indiana Harbor Turning Basin. When the initial 301(g) variance was approved in 1989, IDEM and EPA Region V considered whether any toxic phenols were present in the discharges from Outfalls 012 and 018 (the outfalls included in the original variance requests) at levels that would interfere with attainment of Indiana's water quality standards. The section 301(g) variance for total phenols was initially approved on that basis. The current Indiana water quality standards refer to narrative criteria at Section (c)(1)(A) and (B) to protect aesthetic qualities of taste in food fish and odor in the vicinity of the discharge. There are no numeric criteria for Lake Michigan for total phenols.

Monitoring data for Outfall 014 shows that most of the phenolic compounds were not detected at concentrations greater than 18 µg/l (1.73 lbs/day). Monitoring data for Outfall 613 shows that most of the phenolic compounds were not detected at concentrations greater than 9 µg/l.

IDEM has reviewed ArcelorMittal Indiana Harbor East's request for continuance of the PMELs for ammonia (as N) and phenols (4AAP) based on the 301(g) variances effective in the 1996 permit in the context of Indiana's currently applicable water quality standards and IDEM's procedures for conducting wasteload allocations.

Based upon that review which included the review of effluent data from Internal Outfall 613 for phenols from May 2008 through June 2010, ArcelorMittal has been reporting results that would meet the proposed BAT limits calculated for phenols (4AAP) in the Table above. The treatment system currently in place has been removing phenols at a level where it does not appear the 301(g) variance for phenol (4AAP) that was incorporated into the 1996 permit is required. Therefore, IDEM has made a recommendation to EPA that the variance request for phenol (4AAP) not be continued. IDEM does recommend that the 301(g) variance for ammonia be continued at the level previously approved.

4. Water Quality Based Effluent Limitations

The water quality-based effluent limitations included in the 1996 permit were developed as part of the 1992 Grand Calumet River – Indiana Harbor Ship Canal Wasteload Allocation Study. The 1992 wasteload allocation was based on Indiana water quality standards that became effective in 1990 (new water quality criteria and an upgraded use designation for the Grand Calumet River and Indiana Harbor Canal) and a multi-discharger model that included the Indiana Harbor Watershed (Grand Calumet River (East and West Branches), Indiana Harbor Canal and Indiana Harbor) and portions of Lake Michigan around the Indiana Harbor. Pollutants selected for the multi-discharger model were based on water quality concerns at the time. Specific allocations for Ammonia-N, Total Cyanide, Phenols (4AAP), Lead, and Zinc were assigned to ArcelorMittal outfall 014 and specific allocations for Lead and Zinc were assigned to ArcelorMittal outfall 018 as part of the wasteload allocation. Water quality-based effluent limitations for Ammonia-N, Total Cyanide, and Phenols (4AAP) were incorporated in the 1996 permit at outfall 014.

New regulations in Indiana governing the development of water quality-based effluent limitations for discharges to waters within the Great Lakes system became effective in 1997. The regulations were developed in accordance with the Water Quality Guidance for the Great

Lakes System at 40 CFR Part 132. The regulations included new water quality criteria and methodologies for developing water quality criteria (327 IAC 2-1.5), and procedures for calculating wasteload allocations (WLAs) (327 IAC 5-2-11.4), making reasonable potential to exceed determinations (5-2-11.5) and developing water quality-based effluent limitations (WQBELs) (5-2-11.6). These regulations are applicable to individual pollutants and to whole effluent toxicity. The application of whole effluent toxicity requirements to ArcelorMittal is included in a later section. Due to the new regulations, a different approach was warranted in determining the need for and establishing WQBELs in the Grand Calumet River, Indiana Harbor Canal and Indiana Harbor.

The 1992 multi-discharger model included a hydrodynamic component and a water quality component and was able to simulate in-stream dissolved oxygen concentrations. The model also accounted for flow stratification in the Indiana Harbor Canal and Indiana Harbor and the intrusion of lake water into the Indiana Harbor Canal. The model did not restrict any point source discharges based on mixing zones. The development of a hydrodynamic model for the whole watershed is a resource intensive effort that still requires IDEM to develop wasteload allocations for each outfall to be used as inputs into the model. The 1997 Great Lakes rules added additional requirements for the development of wasteload allocations that were not required in previous modeling efforts. The antidegradation implementation provisions included in the 1997 Great Lakes rules also added an additional level of scrutiny to the incorporation of wasteload allocations developed through the new regulations into NPDES permits.

A review of the 2010 303(d) list shows that there are no pollutants on the list that have the potential to impact wasteload allocation analyses conducted for the renewal of NPDES permits for dischargers on a whole watershed basis. The new listing for Free Cyanide in the Indiana Harbor could potentially impact discharges to the Indiana Harbor Canal and Indiana Harbor. The listing is based on Free Cyanide data collected during the years 2000 and 2001 at IDEM fixed station IHC-0 in the Indiana Harbor. The aquatic life criteria for cyanide were changed from Total Cyanide to Free Cyanide in the 1997 Great Lakes rulemaking. It is IDEM current practice to monitor for Total Cyanide at fixed stations and analyze samples for Free Cyanide only when Total Cyanide data show a reportable concentration (> 5 ug/l). After 2001, data collected at fixed station IHC-0 no longer showed any reportable values for Total Cyanide so Free Cyanide data were not collected. Based on the 2010 listing methodology, the Total Cyanide data could not be used to assess the Indiana Harbor for Free Cyanide. The Indiana Harbor Canal was not listed for Free Cyanide on the 2010 303(d) list due to the two IDEM fixed stations in the Indiana Harbor Canal (located upstream of fixed station IHC-0 at Columbus Avenue and Dickey Road) not showing impairment for Free Cyanide. Total Cyanide is reported at many of the steel mill outfalls in the Indiana Harbor Canal and Indiana Harbor due to technology-based effluent limits (TBELs) for this parameter, but little data for Free Cyanide are available. Therefore, in the NPDES permit renewals, monitoring for Free Cyanide will be required at steel mill outfalls that have process wastewater for use in an assessment of reasonable potential. These data can also be used along with Total Cyanide data at fixed station IHC-0 and data collected in the Indiana Harbor Canal to reassess the impairment for Free Cyanide.

Therefore, a whole watershed model is not required at this time to develop permit requirements to address any TMDL related issues. There is currently not a need to develop WLAs for

pollutants that impact the in-stream dissolved oxygen so a whole watershed hydrodynamic model is not needed for this purpose. There are several items that have occurred in the Indiana Harbor watershed since the 1992 model was developed that can be used to help establish a reasonable approach, other than a whole watershed model, to develop WLAs for discharges in the watershed. The number of dischargers to the Indiana Harbor watershed has decreased, the number of steel mill outfalls has decreased and the discharge volume at many of the remaining steel mill outfalls has decreased. U.S. Steel Gary Works dredged the five mile stretch of the East Branch Grand Calumet River along their property in 2003. Dredging of portions of the West Branch Grand Calumet River west of Indianapolis Boulevard began in December 2009. Data for a variety of parameters have been collected on a monthly basis by IDEM at several fixed water quality monitoring stations in the watershed. Three stations are located on the East Branch Grand Calumet River, one on the West Branch Grand Calumet River, two on the Indiana Harbor Canal, one on Lake George Canal and one on the Indiana Harbor. The U.S. Geological Survey (USGS) installed a stream gage in the Indiana Harbor Canal in 1991 that can be used to determine the Q7,10 and other stream flow statistics of the Indiana Harbor Canal. An intensive in-stream sampling effort along with effluent sampling of major dischargers occurred in July 1999 and April 2000 as part of the Grand Calumet River TMDL Study.

Taking into consideration the above information, it was decided to divide the Indiana Harbor watershed into three subwatersheds and determine the need for and establish water quality-based effluent limitations on a subwatershed basis. In this approach, the background concentration for each subwatershed is determined using in-stream water quality data instead of concentrations determined through whole watershed modeling. During the development of the wasteload allocation for the U.S. Steel Gary Works (IN0000281) NPDES permit that was renewed January 22, 2010, the Indiana Harbor watershed was divided into the following three subwatersheds: East Branch Grand Calumet River, West Branch Grand Calumet River (the portion that flows east into the Indiana Harbor Canal) and the Indiana Harbor Canal/Lake George Canal/Indiana Harbor. The analysis for the East Branch Grand Calumet River is included in the Fact Sheet of the U.S. Steel Gary Works 2010 permit. The analysis for the West Branch Grand Calumet River will be conducted as part of the NPDES permit renewals for the Hammond Sanitary District (IN0023060) and the East Chicago Sanitary District (IN0022829).

The sub watershed model for the Indiana Harbor Canal/Lake George Canal/Indiana Harbor included the ArcelorMittal Indiana Harbor East facility which has one active outfall, consisting of groundwater and storm water, which discharges directly to the Indiana Harbor Canal, and three active outfalls that discharge directly to the Indiana Harbor. The other major dischargers included in the sub watershed model are as follows in relation to the ArcelorMittal Indiana Harbor East facility: ArcelorMittal USA - Indiana Harbor Long Carbon (IN0063355) which has one active outfall upstream to the Indiana Harbor Canal, ArcelorMittal Indiana Harbor – Central Wastewater Treatment Plant (IN0063711) which has one active outfall upstream to the Indiana Harbor Canal, and ArcelorMittal Indiana Harbor – Indiana Harbor West (IN0000205) which has three active outfalls to the Indiana Harbor Canal, one active outfall to the Indiana Harbor, and one water intake in the Indiana Harbor near the mouth of the Indiana Harbor Canal. The discharges from all these facilities were taken into consideration in determining the need for and establishing WQBELs for the discharges from the ArcelorMittal Indiana Harbor East outfalls.

The procedures under 5-2-11.4 may be used to establish TMDLs, wasteload allocations in the absence of TMDLs and preliminary wasteload allocations. These procedures apply to the discharges to the Indiana Harbor Canal/Lake George Canal/Indiana Harbor. A TMDL has not been completed for the Assessment Units for the Indiana Harbor Canal and Indiana Harbor receiving the discharges from ArcelorMittal and a TMDL is not required for any of the pollutants of concern being considered in the wasteload allocation analysis. Therefore, the procedures under 5-2-11.4 were used to develop preliminary wasteload allocations and wasteload allocations in the absence of a TMDL.

Wasteload allocations in the absence of TMDLs are developed to establish water quality-based effluent limitations under 5-2-11.6 and preliminary wasteload allocations are developed to make reasonable potential determinations under 5-2-11.5. The reasonable potential procedures under 5-2-11.5 include provisions for making reasonable potential determinations using best professional judgment (5-2-11.5(a)) and using a statistical procedure (5-2-11.5(b)). The statistical procedure is a screening process in which a projected effluent quality (PEQ) based on effluent data is calculated and compared to a preliminary effluent limitation (PEL) based on the preliminary wasteload allocation. Both the best professional judgment and statistical procedures were used to establish the need for water quality-based effluent limitations to protect the designated uses of the Indiana Harbor Canal, Indiana Harbor, and Lake Michigan.

A separate provision for making reasonable potential determinations for discharges consisting solely of once-through noncontact cooling water (NCCW) is included under 5-2-11.5(g). This provision may also be applied to discharges consisting of mixed wastestreams (e.g. NCCW, storm water and process wastewater) if each component is considered separately. The discharges from ArcelorMittal Outfalls 011 and 018 consist of mixed wastestreams. While IDEM is placing special conditions on the storm water component, these outfalls include sources of wastewater besides NCCW and storm water. Information was not available to determine reasonable potential for the individual sources of wastewater. Therefore, this provision was not applied to any ArcelorMittal outfall.

To develop wasteload allocations and conduct reasonable potential to exceed analyses, IDEM utilized the following effluent data collected and submitted by ArcelorMittal: data collected during the period July 2005 through June 2010 in accordance with the current permit and reported on monthly monitoring reports (MMRs); data collected in 1999, 2000 and 2001 (Mercury only in 2001) as part of the Grand Calumet River TMDL study; data collected during a six week period in 1996 as part of a condition in the 1996 permit; data collected in 1996 and 1997 during a one year oxygen demand monitoring program required as part of a condition in the 1996 permit; additional data collected for the 2001 permit renewal application; and data collected in 2010 for Internal Outfall 518 and Outfall 018 as an update to the permit renewal application.

To develop wasteload allocations, IDEM utilized the following sources of water quality data for the Indiana Harbor Canal and Indiana Harbor: IDEM fixed water quality monitoring station IHC-3S at Columbus Drive (Indiana Harbor Canal upstream of Lake George Canal and all ArcelorMittal outfalls); IDEM fixed station IHC-2 at Dickey Road (Indiana Harbor Canal); IDEM fixed station IHC-0 at the mouth of the Indiana Harbor; data collected in the Indiana

Harbor Canal and Indiana Harbor in 1999 and 2000 as part of the Grand Calumet River TMDL study; data collected by ArcelorMittal at two locations in the Indiana Harbor Canal and one location in the Indiana Harbor during their six week monitoring period in 1996; and, mercury data collected by USGS in 2001 and 2002.

After a review of effluent and in-stream data, it was decided to conduct a multi-discharger WLA for Ammonia-N, Chloride, Fluoride, Sulfate, Lead, Zinc and Total Residual Chlorine. Indiana currently only has a Great Lakes water quality criterion for Sulfate that applies to public water supply intakes and to Lake Michigan. A screening value based on the Indiana criterion for waters outside the Great Lakes system at 2-1-6(a)(5) was used for the Indiana Harbor Canal and Indiana Harbor. An industrial water supply criterion for Total Dissolved Solids of 750 mg/l applies in the Indiana Harbor at the ArcelorMittal Indiana Harbor – Indiana Harbor West intake. This also limits the amount of Sulfate that can be discharged due its contribution to dissolved solids. Other pollutants of concern, including Mercury, were considered on an outfall by outfall basis.

Effluent data for ArcelorMittal Indiana Harbor East Outfall 011 from the six week monitoring period in 1996 showed Total Chromium concentrations of less than 5 ug/l and the two data points collected in 1999 and 2000 as part of the Grand Calumet River TMDL study showed Total Chromium concentrations of 0.4 ug/l. Effluent data for Outfall 014 collected in 1999 and 2000 for the TMDL study showed a maximum Total Chromium concentration of 1.3 ug/l. Effluent data for Outfall 018 collected in 1999 and 2000 for the TMDL study and prior to the addition of Internal Outfall 518 showed a maximum Total Chromium concentration of 0.6 ug/l. A new pollutant scan of Outfall 018 conducted in October 2010, which included Internal Outfall 518, showed a Total Chromium concentration of 1.9 ug/l. Based on these data points being much less than the most stringent, applicable water quality criteria (120 ug/l dissolved Chromium (III) and 11 ug/l dissolved Hexavalent Chromium), Total Chromium and Hexavalent Chromium were not considered pollutants of concern for Outfalls 011, 014 and 018.

In the 1992 model, the Indiana Harbor Canal was divided into sixteen complete mix segments, the Lake George Canal into five complete mix segments and the Indiana Harbor into five complete mix segments. Each of these segments included surface and bottom layers to account for stratification resulting from the warmer canal water inducing an underflow of cooler lake water. The intrusion of lake water was accounted for in the model by adding a portion of the total lake intrusion flow to the surface layer of each of nine affected segments in the Indiana Harbor and Indiana Harbor Canal. A total lake intrusion flow of 1000 cfs was used in the 1992 model. The lake intrusion flow was reevaluated in 2002 by the U.S. Army Corps of Engineers (USACE) as part of the Grand Calumet River TMDL Study. The USACE determined that the lake intrusion flow used in the 1992 model was based on measurements collected during a high lake level. The USGS measured a lake intrusion flow of 138 cfs in October 2002 during a normal lake level condition. The lake intrusion flow measured during the normal lake level condition was determined to be more appropriate for modeling purposes. A new multi-discharger model was developed using a spreadsheet to conduct the multi-discharger WLA for the Indiana Harbor Canal/Lake George Canal/Indiana Harbor. The segmentation used in the 1992 model was maintained in the new spreadsheet model, but only the surface layer was modeled since it will have the higher pollutant concentrations.

In the development of wasteload allocation inputs for the 1992 model, the final acute value (FAV) was applied to individual outfalls and chronic criteria were applied to the end of each segment allowing up to one hundred percent (100%) of the stream flow for mixing. The procedures in 5-2-11.4 require the more stringent of the FAV or the acute WLA calculated using up to a one-to-one dilution to be applied to individual outfalls. They also limit the dilution available for each outfall (the mixing zone) to twenty-five percent (25%) of the stream design flow. Because of the potential for overlapping mixing zones within a segment, the combined discharges in a segment were also limited collectively to twenty-five percent (25%) of the stream design flow. This was done in accordance with 5-2-11.4(b)(3)(D) which requires the combined effect of overlapping mixing zones to be evaluated to ensure that applicable criteria and values are met in the area where the mixing zones overlap.

Based on the reasonable potential statistical procedure at 5-2-11.5(b)(1)(iii) and (iv), the procedures under 5-2-11.4(c) are used as the basis for determining preliminary WLAs and the preliminary WLAs are then used to develop monthly and daily PELs in accordance with the procedure for converting WLAs into WQBELs under 5-2-11.6. Three critical inputs to the procedure under 5-2-11.4(c) include the background concentration, the effluent flow and the stream flow. The background concentration is determined under 5-2-11.4(a)(8). Under this rule, background concentrations can be determined using actual in-stream data or in-stream concentrations estimated using actual or projected pollutant loading data. In the multi-discharger WLA, in-stream data were used to establish the background concentration for the first segment of the model and then either actual or projected pollutant loading data were used. For pollutants not included in the multi-discharger WLA, in-stream data were used.

In the 1992 model, the flow assigned to each outfall was the long-term average flow. This was continued in the current analysis using data from January 2006 through December 2007. The stream design flow used to develop wasteload allocations is determined under 5-2-11.4(b)(3). For the pollutants considered in this analysis, the aquatic life criteria are limiting and the stream design flow for chronic aquatic life criteria is the Q7,10. The flow entering the Indiana Harbor Canal consists mostly of treated effluent flow. It has been historical practice to carry the long-term average discharge flow through the watershed to be used to determine discharge requirements for downstream dischargers. Since three distinct sub watersheds are now being modeled and the background concentration is being reset using actual in-stream data, it was also necessary to reset the stream flow. Since the Q7,10 is the appropriate flow for the water quality criteria being considered, the Q7,10 was used as the upstream flow for the Indiana Harbor Canal/Lake George Canal/Indiana Harbor WLA. Therefore, the stream design flow was set equal to the $Q_{7,10}$ flow in the first segment of the multi-discharger model and then the long-term average flow of each discharger was added to become the stream design flow for downstream dischargers. The lake intrusion flow was added to the stream design flow at the end of each applicable segment. The $Q_{7,10}$ was calculated using data from USGS gauging station 04092750 which is located in the Indiana Harbor Canal at Canal Street. The data used in the calculation consisted of continuous daily mean flow data approved by the USGS for the period 10-1-1994 through 9-30-2009. The $Q_{7,10}$ based on the climatic year (April 1 through March 31) is 352 cfs.

At each applicable outfall, PELs were calculated for each pollutant of concern using an outfall specific spreadsheet that calculates PELs using the procedures under 5-2-11.4(c) to calculate

WLAs and the procedures under 5-2-11.6 to convert WLAs into PELs. The spreadsheet considers all water quality criteria (acute and chronic aquatic life, human health and wildlife) and associated stream design flows and mixing zones. The stream design flow for each water quality criterion was set equal to the same value in the outfall specific spreadsheet. This value was the $Q_{7,10}$ flow plus the accumulation of long term average effluent flow and any lake intrusion flow, minus any intake flow. For Mercury, which is a bioaccumulative chemical of concern (BCC), a mixing zone was not allowed in the development of PELs for any outfall in accordance with 5-2-11.4(b)(1). For those pollutants included in a multi-discharger WLA, the multi-discharger model was used to ensure that the most stringent water quality criterion is met at the edge of the mixing zone for each segment. This was the 4-day average chronic criterion. The multi-discharger model was also used to ensure that Lake Michigan criteria are met at the end of the last segment in the Indiana Harbor. The preliminary WLA was included as an input in the multi-discharger model and PELs were calculated from the preliminary WLA.

In the multi-discharger model, preliminary WLAs for each outfall were established, if possible, so that the monthly and daily PEQs did not exceed the PELs calculated from the preliminary WLAs. If TBELs were included for the parameter at a final outfall or an internal outfall, then the preliminary WLA was increased to the extent possible to allow the mass-based PELs to exceed the TBELs. The preliminary WLAs were adjusted as necessary so that the calculated PELs did not exceed the PELs calculated using the outfall specific spreadsheets and so that the water quality criterion was not exceeded at the edge of the mixing zone for each segment as determined using the multi-discharger model. For some outfalls, the discharge of one or more pollutants for which a multi-discharger WLA was conducted was not considered significant, so a preliminary WLA was established based on the reported effluent concentration, or if sufficient data were available, reported effluent loading data, but PELs were not calculated as allowed under 5-2-11.5(b)(1).

After assigning a preliminary WLA to each outfall in a segment and entering the WLA into the multi-discharger model, the model calculates the PELs for each outfall, the concentration at the edge of the mixing zone for the segment and the concentration at the end of each segment after complete mixing. The concentration after complete mixing then becomes the background concentration for the next segment. To calculate PELs using the outfall specific spreadsheets, the background concentration for each outfall was calculated assuming complete mixing between outfalls. This was done by entering the WLAs for each outfall into a separate spreadsheet that calculated the background concentration upstream of each outfall. By conducting a multi-discharger WLA in this manner, the background concentration for each outfall was based on the accumulated WLAs for the prior outfalls. Since the WLAs were based in some cases on projected effluent quality, the background concentrations were based on projected loading data. This provided a conservative means of determining the cumulative impact of the outfalls. For those pollutants not included in a multi-discharger WLA, the background concentration for each outfall was based on in-stream data.

The results of the reasonable potential statistical procedure are included in Tables 1-4 of Attachment V. The results show that the discharges from ArcelorMittal Indiana Harbor East Outfalls 011, 014 and 018 have a reasonable potential to exceed a water quality criterion for

Mercury. The results also show that the discharge from Outfall 018 has a reasonable potential to exceed a water quality criterion for Lead and Zinc.

In addition to establishing WQBELs based on the reasonable potential statistical procedure, IDEM is also required to establish WQBELs under 5-2-11.5(a) "If the commissioner determines that a pollutant or pollutant parameter (either conventional, nonconventional, a toxic substance, or whole effluent toxicity (WET)) is or may be discharged into the Great Lakes system at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any applicable narrative criterion or numeric water quality criterion or value under 327 IAC 2-1.5". Chlorine is added to the intake water for zebra and quagga mussel control at concentrations exceeding water quality criteria. Therefore, Chlorine may be discharged from Outfalls 011, 014, and 018 at a level that will cause an excursion above the numeric water quality criterion for Total Residual Chlorine under 2-1.5 and WQBELs for Total Residual Chlorine are required at Outfalls 011, 014, and 018.

For each pollutant receiving TBELs at an internal outfall, and for which water quality criteria or values exist or can be developed, concentration and corresponding mass-based WQBELs were calculated at the final outfall. The WQBELs were set equal to the applicable PELs from the multi-discharger model or the outfall specific spreadsheet. This was done for ArcelorMittal Indiana Harbor East Outfall 014 (Lead, Zinc, Naphthalene and Tetrachloroethylene at the final outfall; also, Ammonia-N at internal Outfall 613), and Outfall 018 (Lead and Zinc at internal Outfalls 518 and 618 and Ammonia-N at internal Outfall 518). The mass-based WQBELs at the final outfall were compared to the mass-based TBELs. Since the facility is authorized to discharge up to the mass-based TBELs, if the mass-based TBELs exceed the mass-based WQBELs at the final outfall, the pollutant may be discharged at a level that will cause an excursion above a numeric water quality criterion or value under 2-1.5 and WQBELs are required for the pollutant at the final outfall. This was the case for Lead and Zinc at Outfall 014. Therefore, WQBELs are required for these pollutants regardless of the results of the reasonable potential statistical procedure. However, the results of the reasonable potential statistical procedure were used to help establish the monitoring frequency.

Once a determination is made using the reasonable potential provisions under 5-2-11.5 that WQBELs must be included in the permit, the WQBELs are calculated in accordance with 5-2-11.5(d). Under this provision, in the absence of an EPA-approved TMDL, WLAs are calculated for the protection of acute and chronic aquatic life, wildlife, and human health in accordance with the WLA provisions under 5-2-11.4. The WLAs are then converted into WQBELs in accordance with the WQBEL provisions under 5-2-11.6. The WQBELs are included in Table 7 of Attachment V and were set equal to the PELs calculated for each pollutant.

A wasteload allocation was not conducted for Free Cyanide due to the absence of effluent data for this pollutant of concern. Under 5-2-11.5(b)(2), when effluent data for a pollutant of concern are not available for an existing discharger, the commissioner shall exercise best professional judgment, taking into account the source and nature of the discharge, existing controls on point and nonpoint sources of pollution, and, where appropriate, the dilution of the effluent in the receiving water to determine whether it is necessary to require the discharger to collect the data required to make a reasonable potential determination. Based on the presence of Free Cyanide

on the 2010 303(d) list for the Indiana Harbor, monitoring for Free Cyanide is being included at all ArcelorMittal outfalls containing process wastewater. Under 5-2-11.5(e), the commissioner may require monitoring for a pollutant of concern even if it is determined that a WQBEL is not required based on a reasonable potential determination. Monitoring was added for Fluoride due to the inclusion of this pollutant in the multi-discharger wasteload allocation. Monitoring was added for selenium at Outfall 018 based on data reported for this pollutant at Internal Outfall 518 and, as shown on the April 2011 Form 2C update, the potential that the flow at Internal Outfall 518 may increase above current levels.

In addition to the outfalls on the Indiana Harbor Canal and Indiana Harbor, ArcelorMittal Indiana Harbor East Outfall 019 at the research facility discharges to an unnamed tributary which flows for about 1.4 miles before entering the East Branch Grand Calumet River at Cline Avenue. Based on the location of this outfall, it was considered independently, not as part of a multi-discharger WLA. The East Chicago public water supply is the source of water for the research facility and the current permit includes monitoring for Total Residual Chlorine. Therefore, a reasonable potential analysis for Total Residual Chlorine was conducted for Outfall 019. Effluent data were obtained from monthly monitoring reports for the period July 2005 through June 2010. The effluent flow used in the wasteload allocation analysis was determined in accordance with 327 IAC 5-2-11.4(a)(9). Under this provision, the effluent flow used to develop WLAs for industrial dischargers is the highest monthly average flow from the previous two years of monitoring. Due to quarterly monitoring in the current permit, limited effluent flow data are available. Therefore, the facility was requested to provide a representative maximum monthly average flow value. A value of 0.1 mgd was provided by the facility. The Q7,10 of the unnamed tributary is 0.0 cfs upstream of the outfall. The results of the reasonable potential statistical procedure are included in Table 5 of Attachment V. The results show that the discharge from ArcelorMittal Indiana Harbor East Outfall 019 has a reasonable potential to exceed a water quality criterion for Total Residual Chlorine. The WQBELs are included in Table 7 of Attachment V.

5. Whole Effluent Toxicity Testing Requirements

The 1997 Indiana Great Lakes regulations included narrative criteria with numeric interpretations for acute (2-1.5-8(b)(1)(E)(ii)) and chronic (2-1.5-8(b)(2)(A)(iv)) whole effluent toxicity (WET) and a procedure for conducting reasonable potential for WET (5-2-11.5(c)(1)). U.S. EPA did not approve the reasonable potential procedure for WET so Indiana is now required by 40 CFR Part 132.6(c) to use the reasonable potential procedure in Paragraphs C.1 and D of Procedure 6 in Appendix F of 40 CFR Part 132. IDEM used this procedure in conducting the reasonable potential analysis for WET except that the equation was rearranged so that it is similar to the equation that IDEM uses for other pollutants and pollutant parameters.

The 1996 permit required ArcelorMittal Indiana Harbor East to conduct acute (Outfalls 014 and 018) and chronic (Outfall 014) WET testing using *Ceriodaphnia dubia* and Fathead Minnow quarterly for two years. If toxicity, defined in the permit as 1.0 TUa (i.e. an LC50 of less than 100% effluent) for Outfalls 014 and 018 and 5.0 TUc (i.e. NOEC of not less than 20% effluent) for Outfall 014, was not demonstrated, no further WET testing was required. The facility did not

demonstrate toxicity at any of the outfalls and discontinued their WET testing. The highest measured chronic toxicity at Outfall 014 was 5.0 TUc for *Ceriodaphnia dubia*.

The results of the reasonable potential analysis are shown in Table 6 of Attachment V. The results show that the discharge from Outfall 014 does not have a reasonable potential to exceed the numeric interpretation of the narrative criterion for acute or chronic WET and the discharge from Outfall 018 does not have a reasonable potential to exceed the numeric interpretation of the narrative criterion for acute WET.

The permittee will be required to conduct whole effluent toxicity testing of its effluent discharge from Outfalls 014 and 018 using *Ceriodaphnia dubia* and Fathead Minnow. The terms and conditions of the WET testing are contained in Part I.D. of the NPDES permit. Part I.D.1.c.(2) of the permit states that chemical analysis must accompany each effluent sample taken for bioassay test. The analysis detailed under Part I.A.4., and Part I.A.6. should be conducted for each effluent sample. The effluent should be sampled using the sample type requirements specified in Part I.A.4. and Part I.A.6. Questions regarding the WET testing procedures should be addressed to the Office of Water Quality, NPDES Permits Branch.

As in the previous permit, acute toxicity testing is required at Outfalls 014 and 018 and chronic toxicity testing is required at Outfall 014. Chronic toxicity testing is also being required at Outfall 018 for the first time. Acute toxicity is to be derived from chronic toxicity tests and toxicity is to be reported in terms of acute and chronic toxic units and compared to calculated toxicity reduction evaluation (TRE) triggers. The TRE triggers are set equal to the acute and chronic WLAs for WET in accordance with 327 IAC 5-2-11.6(d). If either an acute or chronic TRE trigger is exceeded, another chronic WET test must be conducted within two weeks. If the results of any two consecutive tests exceed the applicable TRE trigger, ArcelorMittal must conduct a TRE. For each outfall, after the completion of three toxicity tests that do not exceed the acute and chronic TRE triggers, ArcelorMittal may reduce the number of species tested to only include the most sensitive to the toxicity in the effluent. The TRE triggers are shown in Table 7 of Attachment V.

6. Thermal Requirements

The Indiana Harbor Canal and Indiana Harbor shall be capable of supporting a well-balanced, warm water aquatic community. The water quality criteria for temperature applicable to these waterbodies are included in 327 IAC 2-1.5-8(c). Temperature was not a pollutant of initial focus in the Water Quality Guidance for the Great Lakes system under 40 CFR Part 132. Therefore, Indiana was allowed to apply its own temperature criteria to waters within the Great Lakes system when the rules were last revised in 1997 as part of the Great Lakes rulemaking. During this rulemaking, the monthly maximum temperature criteria that were updated in 1990 were retained. Indiana regulations state that the temperature criteria apply outside a mixing zone, but the allowable mixing zone is not established in the rules. IDEM current practice is to allow fifty percent (50%) of the stream flow for mixing to meet temperature criteria.

The implementation procedures under 327 IAC 5-2-11.4 for developing wasteload allocations for point source discharges address temperature under 5-2-11.4(d)(3). This provision states that

temperature shall be addressed using a model, approved by the commissioner, that ensures compliance with the water quality criteria for temperature. There is also no specific procedure in the rules for determining whether a discharger is required to have water quality-based effluent limits (WQBELs) for temperature. Therefore, the general provision for making reasonable potential determinations in 5-2-11.5(a) is applicable. This provision establishes that if the commissioner determines that a pollutant or pollutant parameter is or may be discharged into the Great Lakes system at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any applicable narrative or numeric water quality criterion under 2-1.5, the commissioner shall incorporate WQBELs in an NPDES permit that will ensure compliance with the criterion. In making this determination, the commissioner shall exercise best professional judgment, taking into account the source and nature of the discharge, existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, and, where appropriate, the dilution of the effluent in the receiving water. The commissioner shall use any valid, relevant, representative information pertaining to the discharge of the pollutant.

The multi-discharger model for the Indiana Harbor Canal/Lake George Canal/Indiana Harbor subwatershed discussed above included five active outfalls discharging to the Indiana Harbor Canal and four active outfalls discharging to the Indiana Harbor that contain a thermal component such as noncontact cooling water or boiler blowdown as a source of wastewater. ArcelorMittal Indiana Harbor East Outfall 011 has a flow of 84.7 mgd consisting mostly of noncontact cooling water; Outfall 014 has a flow of 11.5 mgd with Internal Outfall 613 having a flow of 0.091 mgd and the remaining consisting of blowdown from the Main Plant Recycle System which includes process and cooling water; Outfall 018 has a flow of 15.9 mgd with Internal Outfall 518 having a flow of 0.044 mgd and Internal Outfall 618 having a flow of 0.57 mgd with the remaining discharge including various thermal discharges such as noncontact cooling water, boiler blowdown and cooling tower blowdown The ArcelorMittal East 1996 permit includes temperature monitoring and the reporting of thermal discharge based on the intake and outfall temperatures. The source of cooling water for Outfalls 011 and 014 is the Main Intake on Lake Michigan and the source of cooling water for Outfall 018 is the No. 7 Pump House on Lake Michigan. Effluent temperature data reported for the period January 1998 through December 2010 were reviewed. The data for Outfall 011 follow a seasonal pattern with a maximum recorded temperature of 89.2 °F in September 1998. The data for Outfall 014 follow a seasonal pattern, but with relatively higher temperatures than the other ArcelorMittal East outfalls, with a maximum recorded temperature of 90.6 °F in July 2006. The data for Outfall 018 follow a seasonal pattern with a maximum recorded temperature, after the shutdown of the No. 4 AC power station, of 84.8 °F in August 2001.

The multi-discharger model accounted for the intrusion of lake water into the Indiana Harbor and Indiana Harbor Canal. The intrusion of lake water produces thermal stratification that ends at the railroad bridge about 0.7 miles upstream of the mouth of the Indiana Harbor Canal. The ArcelorMittal Indiana Harbor Long Carbon outfall on the east side of the canal and two ArcelorMittal outfalls on the west side of the canal are upstream of the railroad bridge. ArcelorMittal West (IN0000205) Outfalls 009 and 010, which are two large sources of non-contact cooling water, are the first two discharges downstream of the railroad bridge. As part of a special condition in the ArcelorMittal East 1996 permit, the facility was required to conduct

sampling in the Indiana Harbor Canal downstream of Outfall 001 and between Outfalls 008 and 011 and in the Indiana Harbor at a point equal distant from Outfalls 011, 014 and 018. Sampling was to be conducted from April through November for two years and at three river depths (one foot below the surface, mid-depth and one foot above the bottom). The facility conducted the sampling in 1997 and 1998 and submitted a summary of the results of this sampling along with an analysis of the thermal impact of the ArcelorMittal discharges to the Indiana Harbor Canal and Indiana Harbor based on the sampling results in a November 19, 2010 report. The report concluded the following: ArcelorMittal East (IN0000094) and ArcelorMittal West (IN0000205) were both operating at reasonably high production rates in 1997 and 1998 as measured by raw steel production; ambient air temperatures were within normal ranges; there have been no significant changes in the flow regimes in the Indiana Harbor Canal since the study was done; and, the study results demonstrate compliance with applicable temperature criteria.

Additional temperature monitoring at multiple depths was conducted in the Indiana Harbor Canal and Indiana Harbor as part of the July 1999 and April 2000 sampling conducted for the Grand Calumet River TMDL study. The sampling included two locations in the Indiana Harbor (just beyond the lighthouse at the outer edge of the Indiana Harbor and in the middle of the Indiana Harbor, just downstream of ArcelorMittal West (IN0000205) Outfall 011, the last outfall on the Indiana Harbor), two locations in the Indiana Harbor Canal downstream of the railroad bridge (about 0.6 miles downstream of ArcelorMittal West Outfalls 009 and 010 at the mouth of the Indiana Harbor Canal and about 0.3 miles downstream of ArcelorMittal West Outfalls 009 and 010), one location just downstream from Dickey Road and downstream of the three thermal discharges upstream of the railroad bridge and one location just upstream of ArcelorMittal Central WWTP (IN0063711) Outfall 001 which is the ArcelorMittal thermal discharge that is furthest upstream of the railroad bridge. The data showed temperature stratification downstream of the railroad bridge and a decreasing trend in temperature from upstream to downstream. The Indiana Harbor Canal and Indiana Harbor were in compliance with the water quality criteria for temperature. Effluent temperature and flow data were collected during the July 1999 sampling and effluent temperature data were collected during the April 2000 sampling. The TMDL studies were done after the shutdown of the No. 4 AC power station that discharged through ArcelorMittal East Outfall 018 until about May 1999. A review of historical instream temperature data at IDEM fixed stations on the Indiana Harbor Canal and Indiana Harbor from January 1990 through December 2010 and the fixed station on Lake Michigan from January 1997 through December 2010 shows that the maximum temperature values were recorded in July 1999. The average stream flow during the July 1999 temperature monitoring as recorded at USGS gaging station 04092750 in the Indiana Harbor Canal at Canal Street was 485 cfs which is close to the Q7,10 of 352 cfs. Therefore, the July 1999 temperature monitoring was done during a period that is very close to critical stream conditions.

In addition to the instream sampling, a multi-discharger model was used to assist in the reasonable potential analysis. The multi-discharger model for toxics discussed above was modified to account for temperature. The mixing zone was set at fifty percent (50%) of the stream flow to be consistent with current IDEM practice for mixing zones for temperature. The model does not account for heat dissipation so it represents a conservative, dilution only analysis. The effluent and instream data collected in July 1999 and April 2000 as part of the Grand Calumet River TMDL study were used as inputs to the model to determine if the model could

predict the measured instream temperatures. The model predicts an increase in temperature downstream of the railroad bridge beginning with ArcelorMittal West Outfalls 009 and 010 and no exceedance at the edge of any mixing zones for both July 1999 and April 2000. The July 1999 TMDL data show a large decrease in temperature (about 7 °F) from Dickey Road to downstream of ArcelorMittal West Outfalls 009 and 010 in the upper one-half depth of the temperature stratified river with an even larger decrease in the lower one-half depth. There was essentially no further decrease in temperature in the Indiana Harbor during the sampling. The April 2000 TMDL data show a small decrease (about 0.5 °F) from Dickey Road to downstream of Outfalls 009 and 010. However, the temperature did decrease to a larger extent in the Indiana Harbor (about 4 °F). The multi-discharger model is therefore a conservative means of determining the impact of the thermal discharges.

A Q7,10 flow of 352 cfs, long-term average effluent flows, except as noted below, and background temperatures from fixed station IHC-3S were used in the multi-discharger thermal model as were used in the multi-discharger toxics model. The effluent temperature input to the model was set equal to the maximum temperature reported for the month during the period January 1998 through December 2010 if it was considered representative data. The maximum temperature for May for ArcelorMittal East Outfall 018 was reported in 2010, but it was not considered representative due to low discharge flows at the plant. The maximum temperature for November for Outfall 018 was reported in 2009, but it was not considered representative due to low discharge flows at the plant. In addition, the January and February data for both 2009 and 2010 were not considered representative due to low discharge flows. The critical peak temperature months of June through September were included as one period since the same maximum criterion of 90 °F applies each month. The effluent flow for ArcelorMittal West Outfall 009 for the June through September period was set equal to the daily maximum flow due to this outfall having the highest effluent temperature and a significant increase in discharge flow during this period. The results of the conservative, dilution only modeling show that the discharges from ArcelorMittal Indiana Harbor East Outfalls 011, 014 and 018 do not have a reasonable potential to cause or contribute to an excursion of the water quality criterion for temperature in the Indiana Harbor from January through December. Based on the results of the instream sampling and multi-discharger thermal model, the discharges from ArcelorMittal Indiana Harbor East Outfalls 011, 014 and 018 do not have a reasonable potential to exceed a water quality criterion for temperature. Under 5-2-11.5(e), the commissioner may require monitoring for a pollutant of concern even if it is determined that a WQBEL is not required based on a reasonable potential determination. Monitoring for temperature and thermal discharge was continued in the renewal permit.

7. Antidegradation

New regulations in Indiana governing implementation of antidegradation for discharges to waters within the Great Lakes system became effective in 1997. The regulations were developed in accordance with the Water Quality Guidance for the Great Lakes System at 40 CFR Part 132. The regulations included an antidegradation policy (327 IAC 2-1.5-4), antidegradation implementation procedures for High Quality Waters that are not Outstanding State Resource Waters (OSRWs) (327 IAC 5-2-11.3(b)) and antidegradation implementation procedures for OSRWs (5-2-11.7). The implementation procedures for High Quality Waters and OSRWs

distinguish between pollutants that are bioaccumulative chemicals of concern (BCCs) and pollutants that are not BCCs. For waters that are not considered High Quality Waters, the regulations do not allow a lowering of water quality (5-2-11.3(a)).

The Indiana portion of the open waters of Lake Michigan is designated in 2-1.5-19(b)(2) as an OSRW. The antidegradation implementation procedures for OSRWs include provisions for discharges to tributaries of OSRWs in 5-2-11.7(a)(2). Since the Grand Calumet River, Indiana Harbor Canal and Indiana Harbor are tributaries to Lake Michigan, the discharges from ArcelorMittal Indiana Harbor East Outfalls 011, 014, 018 and 019 are subject to the antidegradation implementation procedures in 5-2-11.7(a)(2) in addition to those in 5-2-11.3. The procedures in 5-2-11.7(a)(2) are supplemented by Non-Rule Policy Document Water-002-NRD, "Antidegradation Requirements for Outstanding State Resource Waters Inside the Great Lakes Basin."

The unnamed tributary that receives the discharge from ArcelorMittal East Outfall 019 and the East Branch Grand Calumet River are considered High Quality Waters for all of the pollutants limited in the ArcelorMittal East permit for Outfall 019 except Oil and Grease in the East Branch Grand Calumet River since it is included on the 2010 303(d) List for this parameter. The Indiana Harbor Canal is considered a High Quality Water for all of the pollutants limited in the ArcelorMittal permit except Oil and Grease since it is included on the 2010 303(d) List for this parameter. The Indiana Harbor is considered a High Quality Water for all of the pollutants limited in the ArcelorMittal permit except Free Cyanide and Mercury since it is included on the 2010 303(d) List for Free Cyanide and for Mercury in fish tissue. Lake Michigan is considered a High Quality Water for all of the pollutants limited in the ArcelorMittal permit except Mercury since it is included on the 2010 303(d) List for Mercury in fish tissue. Mercury is the only pollutant of concern in the ArcelorMittal permit that is a BCC.

After the effluent limitations were established for the proposed permit, a review was done to determine if the permit satisfies the antidegradation requirements in 5-2-11.3 and 5-2-11.7. The East Branch Grand Calumet River and the Indiana Harbor Canal are not High Quality Waters for Oil and Grease, so discharges of Oil and Grease are not allowed to cause a lowering of water quality in accordance with 5-2-11.3(a). The Indiana Harbor is not a High Quality Water for Free Cyanide and Mercury, so discharges of Free Cyanide and Mercury are not allowed to cause a lowering of water quality in accordance with 5-2-11.3(a). The unnamed tributary, East Branch Grand Calumet River, Indiana Harbor Canal and Indiana Harbor are High Quality Waters for the other pollutants of concern in the ArcelorMittal permit so in accordance with 5-2-11.3(b), for High Quality Waters that are not designated as an OSRW, no action resulting in a significant lowering of water quality can occur unless an antidegradation demonstration has been completed and approved. Since the unnamed tributary, East Branch Grand Calumet River, Indiana Harbor Canal and Indiana Harbor Canal are tributaries of an OSRW, in accordance with 5-2-11.7(a)(2)(B), the discharges shall not cause a significant lowering of water quality in the OSRW. If a discharge to a tributary of an OSRW causes a significant lowering of water quality in the OSRW, it would not be allowed, regardless of an approvable antidegradation demonstration under 5-2-11.3.

According to 5-2-11.3(b)(1)(A), a significant lowering of water quality occurs if there is a new or increased loading of a BCC from a point source for which a new permit or permit modification would be required. According to 5-2-11.3(b)(1)(B), a significant lowering of water quality occurs if there is a new or increased permit limit for a non-BCC from a point source and the new or increased permit limit will result in both of the following:

(i) A calculated increase in the concentration of the substance outside of the mixing zone, and;
(ii) A lowering of water quality that is greater than a de minimis lowering of water quality.

According to 5-2-11.7(a)(2), for a new or increased discharge of a pollutant or pollutant parameter from a new or existing Great Lakes discharger into a tributary of an OSRW for which a new or increased permit limit would be required, the following apply:

(1) 327 IAC 5-2-11.3(a) and 327 IAC 5-2-11.3(b) apply to the new or increased discharge; and
(2) the discharge shall not cause a significant lowering of water quality in the OSRW.

According to non-rule policy document Water-002-NPD, a new or increased discharge into a tributary of Lake Michigan will not cause a significant lowering of water quality in Lake Michigan if any of several provisions are met, including the following:

The new or increased discharge into a tributary of Lake Michigan does not cause a significant lowering of water quality in the tributary, as determined under 327 IAC 5-2-11.3(b)(1)(A) or 327 IAC 5-2-11.3(b)(1)(B).
In addition to the antidegradation provisions in 5-2-11.3(b)(1)(A) and 5-2-11.3(b)(1)(B), exemptions and exceptions to antidegradation apply in 5-2-11.3(b)(1)(C). For example, in accordance with 5-2-11.3(b)(1)(C)(ii), the following does not constitute a significant lowering of water quality:

New limits for an existing permitted discharger that are not a result of changes in pollutant loading, and will not allow an increase in pollutant loading, including new limits that are a result of the following:

(AA) New or improved monitoring data.
(BB) New or improved analytical methods.
(CC) New or modified water quality criteria or values.
(DD) New or modified effluent limitations guidelines, pretreatment standards, or control requirements for POTWs.

Similarly, in addition to the antidegradation implementation provisions in 5-2-11.7(a)(2)(A) and 5-2-11.7(a)(2)(B), exemptions and exceptions apply in 5-2-11.7(a)(2)(C). For example, in accordance with 5-2-11.7(a)(2)(C)(i), the requirements of 5-2-11.7(a)(2) will be considered to have been met when one or more of the items listed in 5-2-11.3(b)(1)(C)(ii) apply.

The antidegradation procedures used in this review apply to point source discharges. The definition of "point source" in 5-1.5-40 applies to the discharge of a pollutant and the definition of "discharge of a pollutant" in 5-1.5-11 includes discharges through pipes that do not lead to treatment works. Therefore, the antidegradation procedures were applied to all final outfalls and to internal outfalls that do not lead to treatment works. Internal Outfall 613 passes through Terminal Treatment Plant West prior to discharge through Outfall 014. Therefore, internal Outfall 613 was not considered a point source discharge subject to the antidegradation implementation procedures. However, for information purposes, it was included in the antidegradation review. Internal Outfalls 518 and 618 do not pass through a treatment system prior to discharge through Outfall 018 and were therefore both considered point source discharges subject to the antidegradation implementation procedures.

Tables 8-10 in Attachment V were developed to compare the existing effective limitations to the proposed limitations for each outfall. As noted above, the Indiana Harbor Canal is not a High Quality Water for Oil and Grease and the Indiana Harbor is not a High Quality Water for Mercury so discharges of Oil and Grease to the Indiana Harbor Canal and discharges of Mercury to the Indiana Harbor are not allowed to cause a lowering of water quality in accordance with 5-2-11.3(a). For High Quality Waters, if the permit authorizes a new or increased loading of a BCC (Mercury) or new or increased limits for non-BCCs, further analysis was required to determine if the discharge would cause a significant lowering of water quality under 5-2-11.3. If the permit authorizes a new or increased discharge of a pollutant into a tributary of an OSRW for which a new or increased limit would be required, further analysis was also required to determine if the discharge would cause a significant lowering of water quality in the OSRW under 5-2-11.7(a)(2)(B). The footnotes at the end of each table provide an explanation of the antidegradation analysis. The following are a few examples of the results of the antidegradation review in Tables 8-10.

A new monthly average mass TBEL for Oil and Grease is required at Outfall 014. Monthly average and daily maximum TBELs for Oil and Grease were authorized at Outfall 014 under the current permit, but only a daily maximum limit was applied. The Fact Sheet of the 1996 permit includes the calculation of monthly average and daily maximum TBELs for Oil and Grease at Outfall 014. The TBELs were a combination of the monthly average and daily maximum mass allowed for a combination of process operations with separate TBELs. Monthly average TBELs are not provided for Hot Forming operations under 40 CFR 420.72/77 so the TBEL calculations in the 1996 Fact Sheet did not include a monthly average allowance for these process operations. Through application of BPJ, IDEM has calculated in Attachment IV, based on current production, monthly average mass limits for Hot Forming operations using 33.33% of the daily maximum calculated under 40 CFR 420.72/77. In the Fact Sheet of the 1996 permit, the total daily maximum allowance for Oil and Grease calculated at Outfall 014 for the three Hot Forming operations was 3061 lbs/day and the monthly average allowance for the remaining operations was 533 lbs/day. By adding 33.33% of 3061 lbs/day to 533 lbs/day, the BPJ calculation of the monthly average allowed in the 1996 permit is 1553 lbs/day. A monthly average Oil and Grease limit of 1553 lbs/day is being proposed for Outfall 014 for the renewal permit based on what was authorized, but not applied in the current permit. The proposed monthly average mass TBEL for Outfall 014 will result in a monthly average Oil and Grease concentration of greater than 10 mg/l at Outfall 014 at the long-term average discharge flow. Indiana does not have a numeric water

quality criterion for Oil and Grease that applies to the Indiana Harbor. The narrative water quality criteria that apply to the Indiana Harbor do establish a water quality condition at 2-1.5-8(b)(1)(C) of being free from oil or other substances that produce a visible oil sheen in such degree as to create a nuisance. IDEM has used an Oil and Grease concentration of 10 mg/l to interpret this narrative criterion. Therefore, a new monthly average concentration limit of 10 mg/l for Oil and Grease is also proposed for Outfall 014. This will ensure that the narrative criterion is met. The new monthly average mass and concentration limits do not allow an increase above what was authorized, but not applied in the current permit. The new mass TBEL is a new application of Federal Effluent Limitations Guidelines and falls under the antidegradation exemption in 5-2-1.3(b)(1)(C)(ii)(DD). The new concentration limit is the result of the new application of a TBEL and also falls under the antidegradation exemption in 5-2-1.3(b)(1)(C)(ii)(DD). Therefore, the new limits do not cause a significant lowering of water quality and antidegradation under 5-2-11.3(b) is satisfied. This exemption applies to 5-2-11.7(a)(2) so the new limits do not cause a significant lowering of water quality in the OSRW.

New limits for Mercury are required at Outfalls 011, 014, and 018 based on a reasonable potential analysis using data collected in 1999, 2001 and, for Outfall 018, in 2010 and 2001. Since the permit was last renewed in 1996, more stringent water quality criteria for Mercury have become effective and a new analytical method has become available that allows Mercury in the discharge to be quantified. The new limits for Mercury are a result of the following items in the antidegradation exemption in 5-2-11.3(b)(1)(C)(ii):

(AA) New or improved monitoring data.
(BB) New or improved analytical methods.
(CC) New or modified water quality criteria or values.

The new limits for Mercury are not a result of changes in pollutant loading and will not allow an increase in pollutant loading since the projected effluent quality is greater than the proposed effluent limits and the existing discharge flow was used to calculate the proposed mass limits. Therefore, the new limits for Mercury do not cause a lowering of water quality for Mercury and antidegradation under 5-2-11.3(a) is satisfied. Since this exemption applies to 5-2-11.7(a)(2), the new limits for Mercury do not cause a significant lowering of water quality in the OSRW.

New mass limits for Total Residual Chlorine are required at Outfalls 011, 014 and 018. The current permit only has concentration limits at these outfalls and they are less stringent than the proposed concentration limits. The existing effluent flow was used to calculate the WQBELs for the proposed permit so the new mass limits will not result in a calculated concentration increase outside of the mixing zone under 5-2-11.3(b)(1)(B)(i). Therefore, the new mass limits will not cause a significant lowering of water quality and antidegradation under 5-2-11.3(b) is satisfied. Since the new limits do not cause a significant lowering of water quality under 5-2-11.3(b)(1)(B), they do not cause a significant lowering of water quality in the OSRW in accordance with Non-Rule Policy Document Water-002-NPD.

New limits for Lead and Zinc are required at Outfall 018 and new limits for Total Residual Chlorine are required at Outfall 019 based on reasonable potential analyses using data collected

from July 2005 through June 2010. The new limits are a result of the following item in the antidegradation exemption in 5-2-11.3(b)(1)(C)(ii):

(AA) New or improved monitoring data.

The new limits for Lead and Zinc at Outfall 018 and Total Residual Chlorine at Outfall 019 are not a result of changes in pollutant loading and will not allow an increase in pollutant loading since the projected effluent quality is greater than the proposed effluent limits and the existing discharge flow was used to calculate the proposed mass limits. Therefore, the new limits do not cause a significant lowering of water quality and antidegradation under 5-2-11.3(b) is satisfied. Since this same exemption applies to 5-2-11.7(a)(2), the new limits do not cause a significant lowering of water quality in the OSRW.

A complete antidegradation review of the proposed ArcelorMittal permit is included in Tables 8-10. Based on the antidegradation review, the Department has determined that the proposed permit complies with the antidegradation policy found in 2-1.5-4 and an antidegradation demonstration is not required.

The permittee is prohibited from undertaking any deliberate action that would result in a new or increased discharge of a BCC or a new or increased permit limit for a pollutant or pollutant parameter that is not a BCC unless one (1) of the following is completed prior to the commencement of the action; (i) Information is submitted to the commissioner demonstrating that the proposed new or increased discharge will not cause a significant lowering of water quality; (ii) An antidegradation demonstration submitted and approved in accordance with 5-2-11.3.

8. Proposed Effluent Limitations by Parameter

Limits are derived by a comparison of the limits from the previous permit, the calculated federal effluent limitation guideline (ELGs), and the water quality based effluent limitations of which the most stringent is placed in the permit.

Mercury

The discharge from Outfalls 011, 014, and 018 exhibits a reasonable potential to exceed water quality based effluent limitations for Mercury, therefore, limitations for Mercury will be placed in the permit.

TRC

The permittee uses chlorine for zebra mussel control and is limited on the permitted outfalls that include non-contact cooling waters, therefore, Outfalls 011, 014, and 018 will be limited for Total Residual Chlorine (TRC). The source water for Outfall 019 is from the City of East Chicago, which is chlorinated water.

TRC limits have been retained from the previous permit at internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

Zinc

Outfall 014: The monthly average zinc limitation has been retained from the previous permit. The daily maximum ELG at Outfall 014 exhibits a reasonable potential to exceed water quality based effluent limitations for zinc, therefore the daily maximum water quality based effluent limitation will be placed in the permit.

The discharge from Outfall 018 exhibits a reasonable potential to exceed water quality based effluent limitations for Zinc, therefore, limitations for Zinc will be placed in the permit.

Technology based effluent limits for Zinc have been retained from the previous permit at internal outfalls 518 and 618. These limits were developed in accordance with 40 CFR 420.34 and 40 CFR 420.42/43(c), 40 CFR 420.62/63, and 40 CFR 420.54.

Ammonia

Technology based effluent limits for Ammonia have been retained from the previous permit at internal outfalls 613 and 518. These limits were developed in accordance with 40 CFR 420.32/33(a), application of a 301(g) variance, and 40 CFR 420.34.

At Outfall 014 the limits from the previous permit are not appropriate to carry over because they are less stringent than the currently calculated water quality based effluent limits. Based upon the reasonable potential calculation (see Table 3 in Attachment V) a water quality based effluent limit is not required. The source of ammonia for this Outfall is limited at internal Outfall 613, so numeric effluent limits for ammonia are no longer required at Outfall 014 but continued monitoring will remain in the proposed permit.

Phenols (4AAP)

The calculated BAT limits at Outfall 613, which are the main source of Phenols at the final Outfall 014 will continue to be applied at the internal Outfall 613. IDEM has determined the facility can meet the BAT limits developed based upon the production levels provided by the facility. These limits were developed in accordance with 40 CFR 420.32/33(a).

Because the limits for phenol (4AAP) will be more stringent at the internal Outfall 613, which is the main source of phenols contributing to Outfall 014, and the current discharge data suggests that phenol will not be discharged near the level of phenol limitations at Outfall 014 in the current permit, these phenol limits will be removed from Outfall 014 but reporting requirements will be maintained.

The calculated NSPS limits at Outfall 518, which are the main source of Phenols at the final Outfall 018, will be limited at the internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

Total Suspended Solids (TSS)

Effluent limitations for Total Suspended Solids have been retained from the previous permit at final outfall 014. Existing limits originate in the 1996 permit and were based on BPT and includes Outfall 613.

TSS limits have been retained from the previous permit at internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

TSS limits have been retained from the previous permit at internal outfall 618. These limits were developed in accordance with 40 CFR 420.42/43(c), 40 CFR 420.62/63, and 40 CFR 420.54.

Oil & Grease (O & G)

A new monthly average mass TBEL for Oil and Grease is required at Outfall 014. Monthly average and daily maximum TBELs for Oil and Grease were authorized at Outfall 014 under the current permit, but only a daily maximum limit was applied. Through application of BPJ, IDEM has calculated in Attachment IV, based on current production, monthly average mass limits for Hot Forming operations using 33.33% of the daily maximum calculated under 40 CFR 420.72/77. In the Fact Sheet of the 1996 permit, the total daily maximum allowance for Oil and Grease calculated at Outfall 014 for the three Hot Forming operations was 3061 lbs/day and the monthly average allowance for the remaining operations was 533 lbs/day. By adding 33.33% of 3061 lbs/day to 533 lbs/day, the BPJ calculation of the monthly average allowed in the 1996 permit is 1553 lbs/day. A monthly average Oil and Grease limit of 1553 lbs/day is being proposed for Outfall 014 for the renewal permit based on what was authorized, but not applied in the current permit. The proposed monthly average mass TBEL for Outfall 014 will result in a monthly average Oil and Grease concentration of greater than 10 mg/l at Outfall 014 at the long-term average discharge flow. Indiana does not have a numeric water quality criterion for Oil and Grease that applies to the Indiana Harbor; however, IDEM has used an Oil and Grease concentration of 10 mg/l to interpret the narrative criterion. Therefore, a new monthly average concentration limit of 10 mg/l for Oil and Grease is also proposed for Outfall 014.

O & G limits have been retained from the previous permit at internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

O & G limits have been retained from the previous permit at internal outfall 618. These limits were developed in accordance with 40 CFR 420.42/43(c), 40 CFR 420.62/63, and 40 CFR 420.54.

Total Lead

Water quality based effluent limits for total lead have been calculated and applied at final outfalls 014 and 018.

Total Lead limits have been retained from the previous permit at internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

Total Lead limits have been retained from the previous permit at internal outfall 618. These limits were developed in accordance with 40 CFR 420.42/43(c), 40 CFR 420.62/63, and 40 CFR 420.54.

Total Cyanide

Total Cyanide limits have been retained from the previous permit at outfall 014. These limits originate in the 1996 permit. The monthly average and daily maximum limits were based on 85% of the combined loadings for Outfalls 012 and 014 in the 1992 IDEM Grand Cal./IHC WLA.

Total Cyanide limits have been retained from the previous permit at internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

Total Cyanide limits have been calculated for and applied at internal outfall 613. These limits were developed in accordance with 40 CFR 420.32/33(a).

Naphthalene and TCE

Naphthalene and TCE limits have been retained from the previous permit at Outfall 014. These limits were developed in accordance with 40 CFR 420.102/103.

9. Monitoring Conditions and Rationale

Monitoring conditions and sample types have been retained from the previous permit. Analytical and sampling methods used shall conform to the current version of 40 CFR 136 as referenced in 327 IAC 5-2-13(d)(1).

Outfalls 003, 013

The discharge from Outfall 003 is limited to emergency overflow from the process wastewater treatment and plant recycle system tributary to Outfall 014. The discharge from Outfall 013 is limited to emergency overflow from the Terminal Treatment Plant – West, which is part of the Plant Recycle System tributary to Outfall 014. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into the Indiana Harbor Ship Canal (Outfall 003) and the Indiana Harbor Turning Basin (Outfall 013).

DISCHARGE LIMITATIONS
(Outfall 003 and Outfall 013)

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	----	----	----	[2]	24 Hour Tota
TSS	Report	Report	lbs/day	Report	Report	mg/l	[2]	Grab[2]
Oil & Grease	Report	Report	lbs/day	Report	Report	mg/l	[2]	Grab[2]
Lead	Report	Report	lbs/day	Report	Report	ug/l	[2]	Grab[2]
Zinc	Report	Report	lbs/day	Report	Report	ug/l	[2]	Grab[2]
Naphthalene	Report	Report	lbs/day	Report	Report	mg/l	[2]	Grab[2]
Tetrachloroethylene	Report	Report	lbs/day	Report	Report	mg/l	[2]	Grab[2]
Ammonia (as N)	Report	Report	lbs/day	Report	Report	mg/l	[2]	Grab[2]
Phenols(4AAP)	Report	Report	lbs/day	Report	Report	mg/l	[2]	Grab[2]
Cyanide, Free	Report	Report	lbs/day	Report	Report	mg/l	[2]	Grab[2]

Table 2

	Quality or Concentration			Monitoring	Requirements
	Daily	Daily		Measurement	Sample
Parameter	Minimum	Maximum	Units	Frequency	Type
pH	6.0	9.0	s.u.	[2]	Grab[2]

Outfall 008

The discharge is limited to emergency overflows of non-contact cooling water, boiler blow down, and zeolite backwash from the No. 2 AC power station through Outfall 008 to the Indiana Harbor Ship Canal.

DISCHARGE LIMITATIONS
(Outfall 008)

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	----	----	----	[3]	24 Hour Tota
Oil & Grease	Report	Report	lbs/day	Report	Report	mg/l	[3]	Grab
Ammonia (as N)	Report	Report	lbs/day	Report	Report	mg/l	[3]	Grab
Lead	Report	Report	lbs/day	Report	Report	ug/l	[3]	Grab
Zinc	Report	Report	lbs/day	Report	Report	ug/l	[3]	Grab
Free Cyanide	Report	Report	lbs/day	Report	Report	mg/l	[3]	Grab
Phenols (4AAP)	Report	Report	lbs/day	Report	Report	mg/l	[3]	Grab
Temperature								
Effluent	----	----	----	Report	Report	°F	[3]	Grab
Intake	----	----	----	Report	Report	°F	[3]	Grab
Thermal								
Discharge	Report	Report	MBtu/hr	----	----	----	[3]	Report
TRC	Report	Report	lbs/day	Report	Report	mg/l	[3]	Grab

Table 2

	Quality or Concentration			Monitoring	Requirements
	Daily	Daily		Measurement	Sample
Parameter	Minimum	Maximum	Units	Frequency	Type
pH	6.0	9.0	s.u.	[3]	Grab

Outfall 011

The discharge is limited to non-contact cooling water from Blast Furnaces 5 and 6, the No. 2 AC Power Station, and the Sinter plant; boiler blow down from the No. 2 AC Power Station and zeolite rinse water; and some storm water runoff through Outfall 011 to the Indiana Harbor Turning Basin.

DISCHARGE LIMITATIONS
(Outfall 011)

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	----	----	----	1 X Day	24 Hour Tota
Oil & Grease	----	Report	lbs/day	----	Report	mg/l	1 X Week	Grab
Ammonia (as N)	----	Report	lbs/day	----	Report	mg/l	1 X Month	24 Hr. Comp.
Lead	----	Report	lbs/day	----	Report	ug/l	1 X Month	24 Hr. Comp.
Zinc	----	Report	lbs/day	----	Report	ug/l	1 X Month	24 Hr. Comp.
Phenols (4AAP)	----	Report	lbs/day	----	Report	mg/l	1 X Month	Grab
Mercury								
Interim	Report	Report	lbs/day	----	Report	ng/l	6 X Year	Grab
Final	0.00092	0.0023	lbs/day	1.3	3.2	ng/l	6 X Year	Grab
Temperature								
Effluent	----	----	----	Report	Report	°F	2 X Week	Grab
Intake	----	----	----	Report	Report	°F	2 X Week	Grab
Thermal Discharge	Report	Report	MBtu/hr	----	----	----	2 X Week	Report
TRC	8.5	19[12]	lbs/day	12	27	ug/l	5 X Week	Grab

Table 2

	Quality or Concentration			Monitoring	Requirements
	Daily	Daily		Measurement	Sample
Parameter	Minimum	Maximum	Units	Frequency	Type
pH	6.0	9.0	s.u.	1 X Week	Grab

Outfall 014

The discharge is limited to the blow down from the Main Plant Recycle System. The system includes process and cooling water from hot forming operations (80" hot strip mill); pickling operations (Nos. 4 and 5 pickle lines, continuous anneal line); cold rolling mills (56" and 80" tandem mills; Nos. 27, 28, and 29 temper mills); alkaline cleaning lines; hot coating lines (No. 5 hot dip galvanizing line); the No. 2 Steel Plant (i.e. BOF); Nos. 5 and 6 blast furnaces; the No. 2 continuous caster; treated sanitary wastewaters (Nos. 1, 2, and 3 sewage treatment plants); and storm water runoff. ArcelorMittal Steel operates three terminal treatment plants (North, East, and West) as part of the Main Plant Recycle System.

DISCHARGE LIMITATIONS
(Outfall 014)

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	----	----	----	1 X Day	24 Hr. Total
TSS	6620	17092	lbs/day	Report	Report	mg/l	3 X Week	24 Hr. Comp.
Oil & Grease	1553	4568	lbs/day	10	15	mg/l	3 X Week	2 Grabs/24 H
Ammonia (as N)	Report	Report	lbs/day	Report	Report	mg/l	3 X Week	24 Hr. Comp.
T. Cyanide	7.38	17.14	lbs/day	Report	Report	mg/l	3 X Week	Grab
Free Cyanide	Report	Report	lbs/day	Report	Report	mg/l	3 X Week	Grab
Phenols (4AAP)	Report	Report	lbs/day	Report	Report	mg/l	3 X Week	Grab
Total Lead	5.9	12	lbs/day	61	120	ug/l	3 X Week	24 Hr. Comp.
*Total Zinc	14.91	35	lbs/day	Report	Report	ug/l	3 X Week	24 Hr. Comp.
Naphthalene	----	1.80	lbs/day	----	Report	mg/l	3 X Month	24 Hr. Comp.
Tetrachloroethylene	----	2.69	lbs/day	----	Report	mg/l	3 X Month	Grab
Mercury								
Interim	Report	Report	lbs/day	Report	Report	ng/l	6 X Year	Grab
Final	0.00012	0.00031	lbs/day	1.3	3.2	ng/l	6 X Year	Grab
TRC	1.2	2.9[12]	lbs/day	13	30	ug/l	5 X Week	Grab
Temperature								
Effluent	----	----	----	Report	Report	°F	2 X Week	Grab
Intake	----	----	----	Report	Report	°F	2 X Week	Grab
Thermal								
Discharge	Report	Report	MBtu/hr	----	----	----	2 X Week	Report
Hexavalent								
Chromium	Report	Report	lbs/day	Report	Report	mg/l	2 X Year	Grab
Biomonitoring								

Table 2

	Quality or Concentration			Monitoring	Requirements
	Daily	Daily		Measurement	Sample
Parameter	Minimum	Maximum	Units	Frequency	Type
pH	6.0	9.0	s.u.	2 X Week	Grab

*Zinc Effluent Limitations at Outfall 014: The most stringent limitations for zinc have been applied at the Final Outfall; see below in bold, italic, and underlined.

CURRENT PERMIT LIMITS		2011 WQBELS	2011 TBELS
Monthly Average	***14.91 lbs/day***	17 lbs/day	18.86 lbs/day
Daily Maximum	44.69 lbs/day	***35 lbs/day***	56.54 lbs/day

Internal Outfall 613

The discharge is limited to the blow down from the Nos. 5 and 6 blast furnace recycle system. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into the Indiana Harbor Turning Basin via Outfall 014.

DISCHARGE LIMITATIONS
(Outfall 613)

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	----	----	----	2 X Week	24 Hour Tota
*TSS	Report	Report	lbs/day	Report	Report	mg/l	1 X Month	24 Hr. Comp.
Ammonia (as N)	100	300	lbs/day	Report	Report	mg/l	2 X Week	24 Hr. Comp.
T. Cyanide	8.73	17.41	lbs/day	Report	Report	mg/l	2 X Week	Grab
Phenols (4AAP)	0.32	0.64	lbs/day	Report	Report	mg/l	2 X Week	Grab
*Total Lead	Report	Report	lbs/day	Report	Report	ug/l	1 X Month	24 Hr. Comp.
*Total Zinc	Report	Report	lbs/day	Report	Report	ug/l	1 X Month	24 Hr. Comp.

* TSS, Lead, and Zinc are limited at the final outfall; Outfall 014. The limits calculated for application at Internal Outfall 613 were taken into account and included in calculating final effluent limitations for TSS, Total Lead, and Total Zinc at the final outfall.

Outfall 018

The discharge from Outfall 018 is comprised of non-contact cooling water; treated effluents from the No. 4 Steel Plant (BOF), vacuum degasser (RHOB), and No. 1 continuous caster (internal Outfall 618); treated effluents from the No. 7 blast furnace gas scrubber system, (internal Outfall 518); cooling tower blow down and low-volume wastes from the No. 5 boilerhouse/North Lake Energy (No. 17 Turbine) and from the CokeEnergy co-generating facility; storm water runoff; and storm water runoff from the Indiana Harbor Coke Company.

DISCHARGE LIMITATIONS
(Outfall 018)

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	----	----	----	1 X Day	24 Hr. Total
Oil & Grease	----	----	----	----	Report	mg/l	1 X Week	Grab
Free Cyanide	Report	Report	lbs/day	Report	Report	mg/l	2 X Week	Grab
Ammonia (as N)	Report	Report	lbs/day	Report	Report	mg/l	2 X Week	24 Hr. Comp.
Phenols (4AAP)	Report	Report	lbs/day	Report	Report	mg/l	2 X Week	Grab
Lead								
Interim	Report	Report	lbs/day	Report	Report	ug/l	2 X Week	24 Hr. Comp.
Final	5.0	10	lbs/day	38	77	ug/l	2 X Week	24 Hr. Comp.
Zinc								
Interim	Report	Report	lbs/day	Report	Report	ug/l	2 X Week	24 Hr. Comp.
Final	24	48	lbs/day	180	360	ug/l	2 X Week	24 Hr. Comp.
Mercury								
Interim	Report	Report	lbs/day	Report	Report	ng/l	6 X Year	Grab
Final	0.00017	0.00042	lbs/day	1.3	3.2	ng/l	6 X Year	Grab
TRC	1.7	4.0[10]	lbs/day	13	30	ug/l	5 X Week	Grab
Temperature								
Effluent	----	----	----	Report	Report	°F	2 X Week	Grab
Intake	----	----	----	Report	Report	°F	2 X Week	Grab
Thermal								
Discharge	Report	Report	MBtu/hr	----	----	----	2 X Week	Report
Selenium	Report	Report	lbs/day	Report	Report	mg/l	2 X Month	24 Hr. Comp.
Biomonitoring								

Table 2

	Quality or Concentration			Monitoring	Requirements
	Daily	Daily		Measurement	Sample
Parameter	Minimum	Maximum	Units	Frequency	Type
pH	6.0	9.0	s.u.	1 X Day	Continuous

Internal Outfall 518

The discharge is limited to treated wastewater from the No. 7 Blast Furnace gas scrubber system. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into the Indiana Harbor Turning Basin via Outfall 018.

DISCHARGE LIMITATIONS
(Outfall 518)

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	----	----	----	1 X Day	Continuous
TSS	91.24	243.71	lbs/day	Report	Report	mg/l	2 X Week	24 Hr. Comp.
Oil & Grease	----	60.82	lbs/day	----	Report	mg/l	2 X Week	Grab
Ammonia (as N)	60.82	182.47	lbs/day	Report	Report	mg/l	2 X Week	24 Hr. Comp.
T. Cyanide	6.08	12.16	lbs/day	Report	Report	mg/l	2 X Week	Grab
Phenols (4AAP)	0.61	1.22	lbs/day	Report	Report	mg/l	2 X Week	Grab
Total Lead	1.32	2.28	lbs/day	Report	Report	ug/l	2 X Week	24 Hr. Comp.
Total Zinc	2.73	8.21	lbs/day	Report	Report	ug/l	2 X Week	24 Hr. Comp.
TRC	----	3.04	lbs/day	----	Report	mg/l	2 X Week	Grab
Selenium	Report	Report	lbs/day	Report	Report	mg/l	1 X Week	24 Hr. Comp

Internal Outfall 618

The discharge is limited to treated wastewater from the No. 4 BOF, the vacuum degasser (RHOB), and the No. 1 continuous caster process water systems. Treated wastewaters are limited and monitored prior to mixing with non-contact cooling water and discharged to the Indiana Harbor Turning Basin via Outfall 018.

DISCHARGE LIMITATIONS
(Outfall 618)

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	----	----	----	2 X Week	24 Hour Tota
TSS	360	720	lbs/day	Report	Report	mg/l	2 X Week	24 Hr. Comp.
Oil & Grease	102	216	lbs/day	Report	Report	mg/l	2 X Week	2 Grabs/24 H
Total Lead	2.16	6.48	lbs/day	Report	Report	ug/l	2 X Week	24 Hr. Comp.
Total Zinc	3.50	10.50	lbs/day	Report	Report	ug/l	2 X Week	24 Hr. Comp.

Outfall 019

The discharge is limited to non-contact cooling water and storm water runoff from ArcelorMittal Steel's research facility.

DISCHARGE LIMITATIONS
(Outfall 019)

Table 1

Parameter	Quantity or Loading Monthly Average	Quantity or Loading Daily Maximum	Units	Quality or Concentration Monthly Average	Quality or Concentration Daily Maximum	Units	Monitoring Measurement Frequency	Requirements Sample Type
Flow	Report	Report	MGD	----	----	----	1 X Month	24 Hour Tota
TSS	----	----	----	----	Report	mg/l	1 X Month	Grab
Oil & Grease	----	----	----	----	Report	mg/l	1 X Month	Grab
TRC								
Interim	Report	Report	lbs/day	Report	Report	ug/l	1 X Month	Grab
Final	0.0083	0.017[6]	lbs/day	10	20	ug/l	1 X Month	Grab

Table 2

Parameter	Quality or Concentration Daily Minimum	Quality or Concentration Daily Maximum	Units	Monitoring Measurement Frequency	Requirements Sample Type
pH	6.0	9.0	s.u.	1 X Month	Grab

A twelve month time period has been included for ArcelorMittal to meet the final effluent limitations for Total Residual Chlorine (TRC). A footnote will be added (see below) as a permit condition.

[7] The final limits for Total Residual Chlorine (TRC) shall become effective within twelve (12) months from the effective date of the permit. During the interim period reporting only shall be required for TRC.

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10. Special NPDES Permit Conditions and Monitoring Programs

The previous permit contained a number of special conditions and monitoring programs in addition to the interim and final effluent limitations and routine monitoring requirements. Reference is made to the permit for the specific requirements of each program.

A. Storm Water Requirements

According to the 2F application and/or the most recently updated SWP3 (2008), through the use of engineering controls, Outfall 002 no longer discharges to a water of the State. Additionally, four new drainage areas have been identified; SW-11, SW-12, SW-13, and SW-14, but because these areas only have sheet flow and the drainage is not associated with any industrial activity, they are not regulated in the permit. These locations are included in the SWP3 as a best management practice to ensure that the areas continue to be reviewed and policed.

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Table 8

Plant	Outfalls	Drainage Areas
Plant 2	Outfall 007	SW-1, SW-2, SW-3, SW-4, SW-5, SW-6, SW-7, SW-8, SW-9, and SW-10

A review of the current requirements for storm water monitoring is on a semi-annual basis. Part I. E. of the permit details the specific parameters and outfalls where these sampling and monitoring requirements are to be implemented.

EPA has determined that non-numeric Technology-Based Effluent Limits have been determined to be equal to BPT/BAT/BCT for Storm water associated with industrial activity. The Non-Numeric Storm water Conditions and Effluent Limits contain the technology-based effluent limitations. Effective implementation of these requirements should meet the applicable water quality based effluent limitations. The non-numeric requirements of the permit contain effluent limitations, defined in the CWA as restrictions on quantities, rates, and concentrations of constituents which are discharged. Violation of any of these effluent limitations constitutes a violation of the permit.

The technology-based effluent limitations require the permittee to minimize exposure of raw, final, or waste materials to rain, snow, snowmelt, and runoff. In doing so, the permittee is required, to the extent technologically available and economically practicable and achievable, to either locate industrial materials and activities inside or to protect them with storm resistant coverings. In addition, the permittee is required to: (1) use good housekeeping practices to keep exposed areas clean, (2) regularly inspect, test, maintain and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in storm water discharges, (3) minimize the potential for leaks, spills and other releases that may be exposed to storm water and develop plans for effective response to such spills if or when they occur, (4) stabilize exposed area and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants, (5) divert, infiltrate, reuse, contain or otherwise reduce storm water runoff, to minimize

pollutants in your discharges, (6) enclose or cover storage piles of salt or piles containing salt used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces, (7) train all employees who work in areas where industrial materials or activities are exposed to storm water, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel), including all members of your Pollution Prevention Team, (8) ensure that waste, garbage and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged, and (9) minimize generation of dust and off-site tracking of raw, final or waste materials.

To meet the non-numeric effluent limitations in Part I.E.5, the permit requires the permittee to select control measures (including best management practices) to address the selection and design considerations in Part I.E.4.

The permittee must control its discharge as necessary to meet applicable water quality standards. It is expected that compliance with the technology-based effluent limitations and other terms and conditions in this permit will meet this effluent limitation. However, if at any time the permittee, or IDEM, determines that the discharge causes or contributes to an exceedance of applicable water quality standards, the permittee must take corrective actions, and conduct follow-up monitoring.

In addition to the non-numeric effluent limitations, IDEM has implemented a baseline monitoring requirement for specific parameters to demonstrate progress of control measures at the facility. Historic data will be used to determine the baseline concentration for the parameters and subsequent measurements will demonstrate the overall effectiveness of the control measures implemented at the site and will assist the permittee in knowing when additional corrective action(s) may be necessary to comply with the provisions in Part I.E.5 of the permit.

Storm water monitoring data collected during the permit term shall be compared to the baseline concentrations annually to determine if the control measures being implemented at the site result in an improvement from the baseline established by the permittee. If the sample results exceed the baseline concentration, the permittee must take corrective actions in Part I.E.7 of the permit. Follow-up sampling should occur as soon as possible after implementation of corrective actions.

An exceedance of a baseline concentration is not a permit violation. However, failing to take the corrective actions in Part I.E.7 as a result of a baseline concentration exceedance is a violation of the permit. The permittee shall strive for continuous improvement from the baseline until it has been demonstrated that the permittee has implemented the best management practice to meet the provisions in Part I.E.5. of this permit.

Part I.E.6 of the permit was added to require an annual review of the selection, design, installation, and implementation of the control measures to determine if modifications are necessary to meet the effluent limitations in the permit. This annual review will reinforce the continuous improvement of storm water discharges. While this approach is different than EPA's benchmarking process where a monitoring result exceeding a benchmark triggers the review of the selection, design, installation, and implementation of the control measures, the permittee is

required to review the selection, design, installation, and implementation of the control measures annually whether or not the monitoring results exceed a baseline concentration. Failing to conduct the annual review of the selection, design, installation, and implementation of the control measures and reporting the results to Industrial Permit Section is a violation of the permit.

The permittee shall retain any and all records related to this documentation within the SWP3. In addition, this same information must also be submitted to the Industrial NPDES Permit Section on an annual basis.

"Terms and Conditions" to Provide Information in a SWP3

Distinct from the effluent limitation provisions in the permit, the permit requires the discharger to prepare a Storm water Pollution Prevention Plan (SWP3) for its facility. The SWP3 is intended to document the selection, design, installation, and implementation (including inspection, maintenance, monitoring, and corrective action) of control measures being used to comply with the effluent limits set forth in Part I.E. of the permit. In general, the SWP3 must be kept up-to-date, and modified whenever necessary to reflect any changes in control measures that were found to be necessary to meet the effluent limitations in this permit.

The requirement to prepare a SWP3 is not an effluent limitation, rather it documents what practices the discharger is implementing to meet the effluent limitations in Part I.E. of the permit. The SWP3 is not an effluent limitation because it does not restrict quantities, rates, and concentrations of constituents which are discharged. Instead, the requirement to develop a SWP3 is a permit "term or condition" authorized under sections 402(a)(2) and 308 of the Act. Section 402(a)(2) states, "[t]he Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of paragraph (1) of this subsection, including conditions on data and information collection, reporting, and such other requirements as he deems appropriate." The SWP3 requirements set forth in this permit are terms or conditions under the CWA because the discharger is documenting information on how it intends to comply with the effluent limitations (and inspection and evaluation requirements) contained elsewhere in the permit. Thus, the requirement to develop a SWP3 and keep it updated is no different than other information collection conditions, as authorized by section 402(a)(2), in other permits.

B. Reporting Requirements for Solvents, Degreasing Agents, Rolling Oils, Water Treatment Chemical, and Biocides

The permittee will maintain the following information on site, and report to IDEM if requested; the total quantity (lbs/year) of each solvent, degreasing agent, rolling oil, water treatment chemical, and biocide that was purchased for that year and which can be present in any outfall regulated by this permit. This requirement includes all surfactants, anionic, cationic, and non-ionic, which may be used in part or wholly as a constituent in these compounds.

C. Groundwater Remediation Projects

"Compatible Treated Wastewater from Groundwater Remediation Project" for purposes of this permit means groundwaters that are contaminated with pollutants that are limited at the respective wastewater treatment facilities. Other groundwaters shall be pretreated prior to introduction to the respective wastewater treatment facilities to remove or treat those pollutants that are not limited or that cannot be effectively removed or treated at the respective wastewater treatment facilities.

The permittee shall notify IDEM prior to the date it desires to introduce compatible or pretreated groundwaters from any groundwater remediation project to wastewater treatment facilities at ArcelorMittal Steel USA, Inc.- Indiana Harbor East. Such notification shall include the volume of groundwater to be treated and discharged; a description of any groundwater pretreatment facilities; the identity of the receiving wastewater treatment facility and permitted outfall; identification, concentrations and mass loadings of containments in the untreated groundwater; identification, and expected concentrations and mass loadings of containments in the pretreated groundwater prior to introduction of groundwater to the wastewater treatment facilities; and, identification and expected concentrations and mass loadings of groundwater contaminants to be discharged from the wastewater treatment facilities. IDEM shall evaluate the information submitted to determine if a permit modification is required under 327 IAC 5-2-16. Discharge of this waste stream shall not commence until ArcelorMittal Steel USA, Inc. has received written approval from IDEM. This condition has been retained from the previous permit.

D. No. 7 Blast Furnace

The permittee is prohibited from discharging process wastewater from No. 7 Blast Furnace from any point source (except for the treated No. 7 Blast Furnace Recycle Blow down from Internal Outfall 518 through Final Outfall 018). The permittee has provided documentation that the slag pits were clay lined (3 feet of clay plus 2 feet of slag fines for armoring) during 2004 and 2005. IDEM was provided with a copy of the Purchase Order and specification sheet dated April 24, 2004 issued to the contractor who lined the pits. Thus permittee has demonstrated to the satisfaction of IDEM that there is no discharge of process wastewater from the slag quench pits. The condition requiring the permittee to maintain and operate ground water recovery wells in the vicinity of the No. 7 Blast Furnace slag quench pits has been removed from the proposed permit.

E. Pollutant Minimization Program

This permit contains water quality-based effluent limits for Total Residual Chlorine at Outfalls 011, 014, 018, and 019. The permittee is required to develop and conduct a pollutant minimization program (PMP) for each pollutant with a WQBEL below the LOQ.

F. Schedule of Compliance

The Reasonable Potential to exceed water quality based effluent limits analysis identified the following pollutants in the effluent from specific outfalls as having the potential to exceed the final effluent limitations in the permit:

Outfall 011: Mercury
Outfall 014: Mercury
Outfall 018: Mercury, Lead, Zinc

Based on the limited nature of the available data, the Indiana Harbor East facility may not be able to assure 100% compliance with the new WQBEL effluent limits for these metals at the time the renewal NPDES permit is issued. Therefore, the proposed permit is eligible to contain a schedule of compliance for the new water quality-based effluent limitations for Mercury at Outfalls 011, 014, and 018, as well as Lead and Zinc at Outfall 018. The schedule of compliance requires ArcelorMittal to develop a plan to identify the source(s) of these metals in the wastewater and develop a plan to achieve compliance with the final effluent limits and implement the plan within 24 months after the plan to collect data and information regarding pollution prevention and treatment has been approved.

ArcelorMittal does not intentionally introduce Mercury at the Indiana Harbor East facility as raw materials, process additives, alloying elements or in any significant manner in the basic steel making or steel finishing processes. The exact source(s) are currently unknown. The permittee shall achieve compliance with the effluent limitations specified for Mercury, Lead and Zinc at Outfalls 011, 014, and 018 as soon as possible but no later than Fifty-four (54) months from the effective date of this permit in accordance with the following schedule:

1. The permittee shall submit a written Quality Assurance Project Plan (QAPP) to identify the sources of Mercury, Lead and Zinc to the Compliance Data Section of the Office of Water Quality (OWQ) no later than three (3) months from the effective date of this permit. IDEM will provide any comments within 30 days of receipt of the QAPP. If comments are made, IDEM will provide the permittee with the opportunity to discuss any comments prior to implementation of the QAPP. If IDEM does not comment within 30 days of its receipt of the QAPP, the permittee may proceed with implementation as set forth in the QAPP. The QAPP shall include a description of the method(s) selected for identifying the sources of Mercury, Lead and Zinc in addition to any other relevant information. The QAPP shall include a specific time line specifying when each of the steps will be taken. The new effluent limits for Mercury, Lead and Zinc are deferred for the term of this compliance schedule, unless the effluent limits can be met at an earlier date. The permittee shall notify the Compliance Data Section of OWQ as soon as the effluent limits for Mercury, Lead and Zinc can be met. Upon receipt of such notification by OWQ, the final limits for Mercury, Lead and Zinc will become effective, but no later than Fifty-four (54) months from the effective date of this permit. Monitoring and reporting of Outfalls 011, 014 and 018 effluent for these parameters is required during the interim period. The QAPP shall address, at a minimum, the following:

    a. Identification of the sampling locations that will be utilized to evaluate potential sources of Mercury, Lead and Zinc to Outfalls 011, 014 and 018 (current and historic).
    b. Development of a sampling plan to identify sources of Mercury, Lead and Zinc.

c. Assessment of the potential pollution prevention activities for Mercury, Lead and Zinc at the facility. The assessment should include a methodology for determining the feasibility of eliminating or reducing Mercury, Lead and Zinc from the internal wastestreams identified for inclusion in the sampling plan.

2. The permittee shall submit a report to the Compliance Data Section of OWQ no later than Fifteen (15) months from the effective date of this permit. This report shall include detailed information on:

a. All sampling conducted during the previous 12 months for Mercury, Lead and Zinc including all analytical results obtained up to the time of the report.
b. A description of any pollution prevention activities implemented as a result of the sampling results (such as replacement of raw or intermediate products containing excessive quantities of Mercury, Lead and Zinc) that reduce or eliminate the addition of Mercury, Lead and Zinc into Outfalls 011, 014 and/or 018.

3. The permittee shall submit a QAPP report to the Compliance Data Section of OWQ no later than 27 months from the effective date of this permit. This report shall include detailed information on:

a. The results of all sampling performed during the previous 24 months to evaluate potential sources of Mercury, Lead and Zinc to Outfalls 011, 014 and 018.
b. The evaluation of short-term and long-term control measures, including, but not limited to, best management practices, pollution prevention activities and treatment technologies that will reduce the concentration of Mercury, Lead and Zinc in the effluent from Outfalls 011, 014 and 018.
c. A description of any control measures that were identified and implemented during the previous 24 months.
d. Any proposed or actual construction of additional treatment technology to reduce the concentration of Mercury, Lead and Zinc in the effluent from Outfalls 011, 014 and 018.
e. The anticipated date when the permittee will submit the Final Plan for Compliance (FPC) for the final effluent limits for Mercury, Lead and Zinc.

4. The permittee shall submit a proposed Final Plan for Compliance (FPC) containing the source identification report for Mercury, Lead and Zinc and the plan for implementing pollution prevent or installing treatment where feasible to achieve compliance with the final limits for Mercury, Lead and Zinc no later than thirty (30) months after the effective date of this permit. IDEM will provide any comments within 30 days of receipt of the FPC. If comments are made, IDEM will provide the permittee with the opportunity to discuss the comments prior to implementation. If IDEM does not comment within 30 days of its receipt of the FPC, the permittee may proceed with implementation as set forth in the FPC.

5. The permittee shall submit a report to the Compliance Data Section of OWQ no later than Thirty-Nine (39) months from the effective date of this permit. This report shall include detailed information on:

   a. The implementation of pollution prevention activities such as replacement of raw or intermediate products containing excessive quantities of Mercury, Lead and Zinc; or production practices that reduce or eliminate the addition of Mercury, Lead and Zinc into the wastewater.
   b. The construction of treatment technology identified in the FPC for the reduction of Mercury, Lead and Zinc in the effluent from Outfalls 011, 014 and 018.
   c. The achievement of milestones identified in the FPC.
   d. The anticipated date when the discharge from Outfalls 011, 014 and 018 can achieve compliance with the final effluent limits for Mercury, Lead and Zinc.

6. The permittee shall submit a progress report to the Compliance Data Section of OWQ no later than Forty-Eight (48) months from the effective date of this permit. This report shall include detailed information on:

   a. The implementation of pollution prevention activities such as replacement of raw or intermediate products containing excessive quantities of Mercury, Lead and Zinc; or production practices that reduce or eliminate the addition of Mercury, Lead and Zinc into the wastewater.
   b. The construction of treatment technology identified in the FPC for the reduction of Mercury, Lead and Zinc in the effluent from Outfall 011, 014 and 018.
   c. The achievement of milestones identified in the FPC.
   d. The anticipated date when the discharge from Outfalls 011, 014 and 018 can achieve compliance with the final effluent limits for Mercury, Lead and Zinc.

7. Within thirty (30) days of completion of any additional pollutant control equipment, the permittee shall file with the Industrial NPDES Permits Section of OWQ a notice of installation for the additional pollutant control equipment and a design summary of any modifications.

8. The permittee shall comply with the final effluent limitations for Mercury, Lead and Zinc at Outfalls 011, 014 and 018 no later than Fifty-four (54) months from the effective date of this permit.

9. If the permittee fails to comply with any deadline contained in the foregoing schedule, the permittee shall, within fourteen (14) days following the missed deadline, submit a written notice of noncompliance to the OWQ stating the cause of noncompliance, and remedial action taken or planned, and the probability of meeting the date fixed for compliance with final effluent limitations.

G. Free Cyanide and Fluoride

Based on the presence of **Free Cyanide** on the 2010 303(d) list for the Indiana Harbor, monitoring for Free Cyanide is being included at all ArcelorMittal outfalls containing process wastewater.

Fluoride was identified in the 2-C application as potentially present in the discharge; therefore, monitoring requirements have been included at potentially affected Outfalls 011, 014, and 018.

The permittee shall establish a monitoring program to establish a data base for the Free Cyanide and Fluoride at the outfalls listed below. The information gathered from the monitoring program will aid in the next NPDES permit renewal. The monitoring program will consist of twelve (12) consecutive months of data. The monitoring program will begin no later than the thirty-sixth (36) month from the effective date of the permit and will last for twelve (12) consecutive months.

Outfall 011

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Cyanide, Free[1]	Report	Report	lbs/day	Report	Report	mg/l	2 X Month	Grab

[1] Sample preservation procedures and maximum allowable holding times for total cyanide, or available (free) cyanide are prescribed in Table II of 40 CFR Part 136. Note the footnotes specific to cyanide. Preservation and holding time information in Table II takes precedence over information in specific methods or elsewhere.

Parameter	Test Method	LOD	LOQ
Cyanide, Free	4500-CN-G	5 ug/l	16 ug/l
Cyanide, Free	1677	0.5 ug/l	1.6 ug/l

Outfalls 011, 014 and 018

	Quantity or Loading			Quality or Concentration			Monitoring	Requirements
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Fluoride	Report	Report	lbs/day	Report	Report	mg/l	2 X Month	24 Hr. Comp.

H. Zebra and Quagga Mussel Control

As a means of controlling Zebra Mussel colonization within the ArcelorMittal Steel Indiana Harbor East, the permittee chlorinates intake water on a continuous basis during a portion of each year. Wastewater shall be de-chlorinated prior to discharge from external Outfalls 011, 014, and 018. The discharge from these outfalls shall have limitations and monitoring requirements for Total Residual Chlorine (TRC) to meet compliance with the TRC requirements.

Monitoring is required only during the period when intake water is being chlorinated for all Outfalls except 014. The wastewater discharge through Outfall 014 is chlorinated year round and shall be de-chlorinated year round prior to discharge.

I. Dredging Project Effluent

For the purposes of this permit, the term "Dredging Project Effluent" means wastewater generated during the dewatering of sediments or other material dredged from the Indiana Harbor or the Indiana Harbor Ship Canal. Beginning on the effective date and lasting until the expiration date of this permit, the permittee is authorized to treat and discharge dredging water effluent through its existing wastewater treatment facilities providing that the pollutant limits in the permit for the affected outfall are met and that treatment is adequate to reduce the concentration and loading of any additional pollutants so that they are below WQS levels and the loadings found in the most recent Wasteload Allocation prepared by IDEM. Dredging water effluents that are contaminated with pollutants that are not limited, or cannot be removed or treated at the respective wastewater treatment facility, must be pretreated for the removal of those pollutants prior to introduction into the wastewater treatment facility. This condition has been retained from the previous permit.

J. No. 6 Dock

Beginning on the effective date of this permit and lasting until a groundwater remediation program is implemented at the No. 6 Dock in accordance with the U.S. EPA Agreed Order V-W-93-AO-15 issued March 29, 1993 and U.S. EPA Agreed Order V-W-94-AO-37 issued August 31, 1994, during the period March through November of each year the permittee shall continue conducting monthly inspections and repair programs at the No. 6 Dock for the purpose of sealing leaks of groundwater to the Indiana Harbor Ship Canal above the water line. The permittee shall report a summary of the leak detection and repair program not later than December 31st of each year of the program for that year. The report shall include the dates of inspection, the findings from each inspection, a description of the repairs undertaken, the approximate location of each repair with respect to a permanent reference location, and the dates the repairs were completed. The permittee shall also maintain a log of inspections and repairs at the facility, and shall make such log available to representatives of IDEM and the U.S. EPA upon request. This condition has been retained from the previous permit.

K. Discharges to the Lake Michigan Impoundment

As part of the requirement in Part III.G.2 of the 1996 permit, the facility was required to sample at six locations inside the perimeter of the Lake Michigan Impoundment specified in the U.S. Army Corps of Engineers permit. They were to sample for ammonia-N, total cyanide and phenols (4AAP) every two months from March through November and then once annually during this period for a specific list of metals, chloride, fluoride and dissolved solids along with volatile organic compounds and semi-volatile organic compounds.

The facility has actually been sampling at seven locations in the Lake Michigan Impoundment and one location in Lake Michigan along the impoundment. A review of the data shows little variability in the data for the seven impoundment samples during a given sampling event. There is some variability from sampling event to sampling event, but no obvious trend of increasing or decreasing concentrations from 1996 through 2010.

The facility has stated that they have completed cleanup operations at the No. 7 blast furnace slag quench pits, the fly ash lagoon has been closed, and the permit prohibits the discharge of process wastewater to the Lake Michigan Impoundment. Therefore, groundwater and stormwater runoff should be the only sources of water to the impoundment from the facility and the monitoring requirements for the Lake Michigan Impoundment have been removed from the draft permit.

The permittee shall not discharge process wastewater or fly ash lagoon leachate to the Lake Michigan Impoundment. Discharges to the Lake Michigan Impoundment shall be limited to storm water from the north portion of the facility, precipitation, groundwater from the facility, and inflows from Lake Michigan. The permittee shall use only service water (Lake Michigan intake water) for blast furnace slag quench near the Lake Michigan Impoundment. This prohibition has been retained from the previous permit.

For purposes of this permit, the water contained in the Lake Michigan Impoundment constructed by Inland Steel (now ArcelorMittal Steel) shall be considered to be part of Lake Michigan.

L. Water Treatment Additives

In the event that changes are to be made in the use of water treatment additives that could significantly change the nature of, or increase the discharge concentration of the additives contributing to the final Outfalls, the permittee shall notify the Indiana Department of Environmental Management as required in Part II.C.1 of this permit. including dosage rates contributing to Outfalls 003, 008, 011, 013, 014, 018, and/or 019, the permittee shall notify the Indiana Department of Environmental Management as required in Part II.C.1 of this permit. The use of any new or changed water treatment additives or dosage rates shall not cause the discharge from any permitted outfall to exhibit chronic or acute toxicity. Acute and chronic aquatic toxicity information must be provided with any notification regarding any new or changed water treatment additives or dosage rates. Following is a list of water treatment additives which have been approved for use at this facility:

Plant Location	Chemical	Purpose	Outfall
80 HSM 5& 6 Cooling	3DT 187	Corrosion inhibitor	014
	ST70	oxidizing biocide	014
80 HSM 4 Furnace Cooling	Trac109	Corrosion inhibitor	014
	7320	Non oxidizing Biocide	014
5 &6 blast furnace	7385	Scale Inhibitor	014
Master Recycle	7308	Oil/ grease/micrrobio dispersant	014
	8103	Cationic flocculant and filter aid	014

	Plus		
DIW	8187	Emulsion breaker, water clarification solids removal	014
	7766 Plus	Solids removal from water	014
Zebra Mussel	Y302611	Chlorine Scavenger	011
	Y302611	Chlorine Scavenger	014
	Y302611	Chlorine Scavenger	018
1 Caster	7320	biocide	018
	3DT190	Deposit and solids control	018
	7396	Corrosion inhibitor	018
	3DT185	Corrosion inhibitor	018
	7308	Oil/ grease/micrrobio dispersant	018
	8103 Plus	Cationic flocculant and filter aid	018
	ST70	Biocide	018
	Trac109	Corrosion inhibitor	018
	H-130	Biocide	018
	1393	Scale Inhibitor	018
#2 Caster	3DT190	Deposit control	011
	3DT185	Corrosion inhibitor(anodic)	011
	7396	Corrosion inhibitor(cathodic)	011
	7320	Biocide	011
	H130	Biocide	011
	ST70	Biocide	011
	Trac109	Corrosion inhibitor	011
	8103 Plus	Cationic flocculant and filter aid	011
4BOF / RHOB	7385	Scale Inhibitor	018
	7763	flocculant	018
	7135	Coagulant	018
	8187	Emulsion breaker, water clarification solids removal	018
	7766 Plus	Solids removal from water	018
	1392	Scale Inhibitor	018
	Trac109	Corrosion inhibitor	018
2 BOF	7766Plus	Solids removal from water	011
	DT-9472	Emulsion breaker, water	011

		clarification solids removal	
	3DT190	Deposit control	011
	3DT177	Corrosion, scale	011
	3DT199	Corrosion inhibitor (yellow metal)	011
	Trac109	Corrosion inhibitor	011
	7385	Scale inhibitor	011
	7320	Biocide	011
5 Boiler House	22305	Scale Inhibitor	018
	1800	Condensate / pH Adj	018
	1720	Oxygen scavenger	018
5 BH Cooling Tower	3DT199	Copper Inhibitor	018
	1393	Scale Inhibitor	018
	3DT195	Mild Steel Inhibitor	018
7 Blast Furnace Primary	Trac109	Corrosion inhibitor	018
	3DT177	Corrosion inhibitor	018
	3DT190	Dispersant	018
	7320	Biocide	018
7 Blast Furnace Secondary Cooling	8187	Emulsion breaker, water clarification solids removal	018
	7766Plus	Solids removal from water	018
7 Blast Furnace Scrubber	7385	Scale Inhibitor	018
Outfall 011	Shellzone	Freeze Protection	011

M. Biocides Concentration

The permittee must receive written permission from the IDEM if they desire to use any biocide or molluscicide other than chlorine in once through cooling water. The use of any biocide containing tributyl tin oxide in any closed or open cooling system is prohibited.

N. Polychlorinated Biphenyl

There shall be no discharge of polychlorinated biphenyl (PCBs) compounds such as those commonly used for transformer fluid.

O. Permit Part IV: Cooling Water Intake Structure
Best Technology Available (BTA) Evaluation

Section 316(b) of the federal Clean Water Act requires that facilities minimize adverse environmental impact resulting from the operation of cooling water intake structures (CWIS) by using the "best technology available" (BTA). U.S. EPA has promulgated

rules to implement these requirements for new facilities (Phase I rules), large, existing power plants (Phase II rules) which are currently remanded, and offshore oil and gas extraction facilities (Phase III rules), and that implementation must take place through the issuance of NPDES permits. However, there is a large universe of facilities which are not specifically addressed by the rules, including:

New facilities with a CWIS design flow less than 2 MGD;
Existing power plants with a CWIS design flow less than 50 MGD; and
Manufacturing facilities such as existing steel mills, paper mills, etc. with a surface water intake that use at least a portion of their intake flow for cooling purposes.

U.S. EPA has recently emphasized that all of these facilities, including those not specifically addressed by rules must be evaluated for 316(b) compliance. 40 C.F.R. §125.90(b) directs permitting authorities to establish 316(b) requirements on a best professional judgment (BPJ) basis for existing facilities not subject to categorical section 316(b) regulations (Phase I, II (currently remanded) or III rules. IDEM is required to make a BTA determination using BPJ so the permit will comply with the federal regulation.

ArcelorMittal submitted documentation on the design and operation of the CWISs at the Indiana Harbor East facility in November 2008. According to the permittee there have been a number of modifications to intake structures and process flows at the facility. Two electric power generation facilities, No. 3 and No. 4 AC Stations, have been taken out of service; these were large volume cooling water users. The only active remaining pumping stations at the facility that provide cooling water and/or other raw water process needs include the Main Intake, No. 2 Pump House, and No. 7 Pump House.

The No. 6 Pump House, originally designed to withdraw directly from the Main Intake canal, and No. 1 Pump House, originally designed to withdraw just upstream of the Main Intake weir, have both been converted to dedicated closed-loop operation in support of the Mater Recycle System (MRS) which was construct in 1980. Make-up water for the MRS in the southern and northern portions of the facility is provided by No. 2 Pump House and No. 7 Pump House, respectively. However, there is limited connectivity between these two parts of the MRS. The No. 6 Pump House does have a functional make-up water pump configured to draw water directly from the intake canal; however, it is rarely if ever used.

Construction of the MRS in 1980 substantially reduced the demand for raw water withdrawals from Lake Michigan and lessened the mass loading of pollutant discharges to the Indiana Harbor Ship Canal. Subsequently, raw water needs at the Indiana Harbor East facility were further reduced with the shuttering the No. 3 AC Station in the late 1980's and No. 4 AC Station in 1999. With the MRS in place, cooling water intake flows at the Indiana Harbor East facility have been essentially reduced to a level "commensurate with a closed-cycle recirculating cooling water system". Those reduced water withdrawals associated with the MRS-related engineering and operational

measures have resulted in a direct and substantial reduction in fish impingement and entrainment from the original CWIS design (dated as far back as 1920.)

One Fish Monitoring Study was conducted from June 1976-June 1977 which characterized the physical and biological conditions in the vicinity of the intake structures at that time. During that period there were no closed-loop systems and in addition to the main intake, the facility operated five pump houses each with the potential to impinge/entrain fish. As such the magnitude of the impingement/entrainment reported in the 1976-1977 study is not representative of current conditions. Since the mid-1970's the facility has converted a substantial amount of its cooling/process water system to a closed-loop system in support of the Master Recycle System (MRS) and taken some large water volume processes off-line. This reduction in intake flows is significant and has greatly reduced the potential for adverse environmental impact. The following is a summary of the documentation submitted by the permittee for this facility.

No. 7 Pump House

- Lake Michigan source
- The No. 7 Pump House provides water to and is located in the northeast quadrant of Plant 2 along and parallel to the Lake Michigan shoreline. The pump house was constructed in 1979 to service the large volume once-through cooling needs of the No. 4 AC station and lesser needs of the other production lines. No. 4 AC Station was shuttered in 1999 substantially reducing the volume of water needed from the No. 7 Pump House for facility operations.
- 43 MGD effective design intake capacity
- 86 % reduction from original design
- Bar racks present
- 7 "Envirex" brand vertical traveling screens (single entry/exit) in a common wet well. Three screens have been modified to function in a fixed panel mode; all screens are fitted with 3/8" mesh screens.
- 0.17 f/s velocity under normal operating conditions as calculated by the permittee.
- 1.24 f/s total rated capacity velocity as calculated by the permittee
- 1 pump
- Screen wash system used to remove impinged debris and/or fish, which are washed into a common collection trough which runs along the length of the screen structures below floor level. Trough contents are returned to a screened sump/basket and manually discarded.

Main Intake

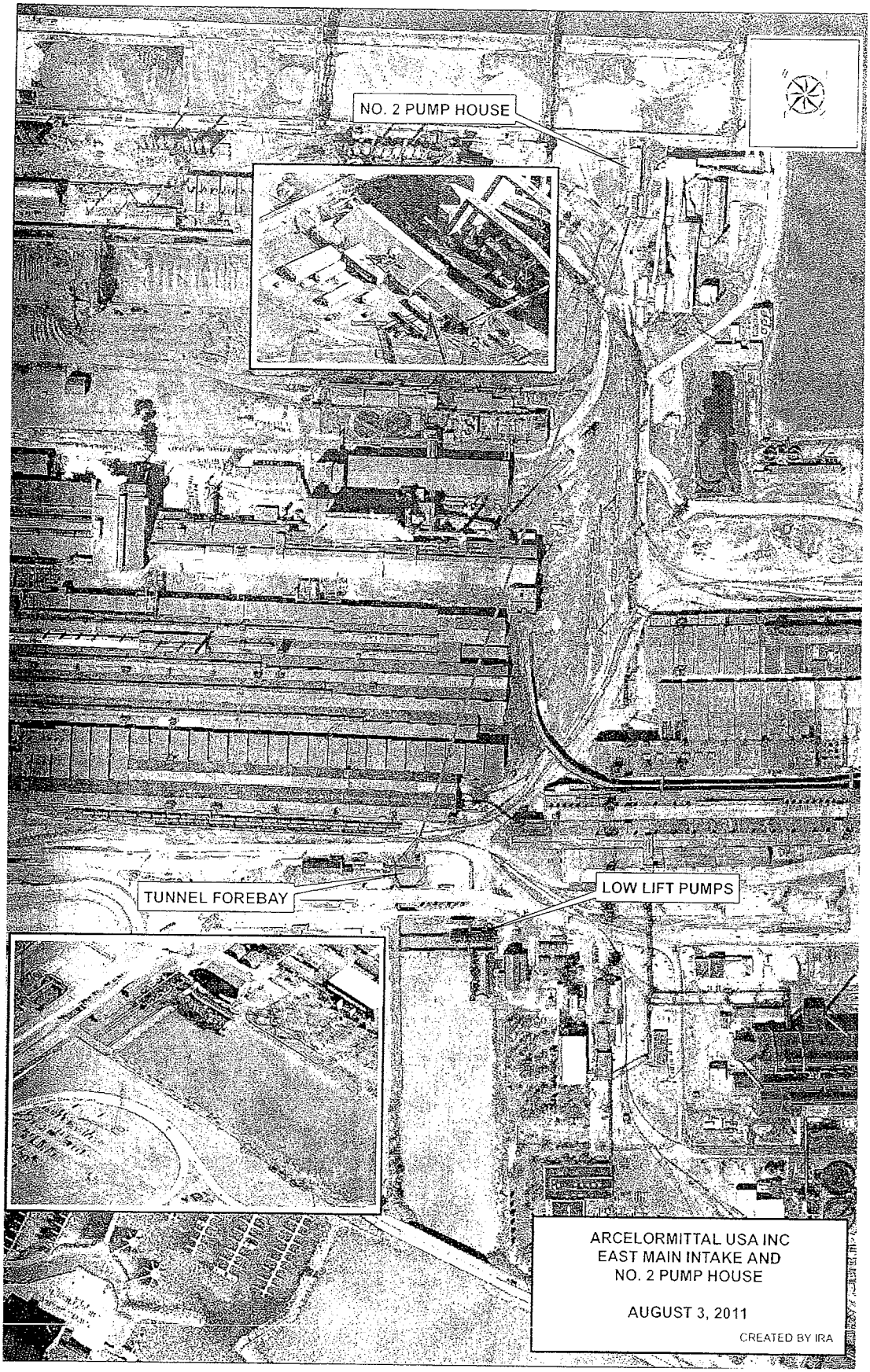
- Lake Michigan Source
- Positioned at the terminus of an intake canal that extends generally west approximately 1,240 feet from the Lake Michigan shoreline. The intake canal is approximately 338 feet wide, narrowing to about 50 feet wide at the entrance to the pump forebay. When Lake Michigan water levels are lower than needed to support facility operations, pumps lift water from the pump structure forebay over a weir designed to maintain water levels in

the cooling/process water systems. The weir has 26 one-way flap gates that actuate when the water behind the weir is lower than lake surface level, thereby allowing water to flow passively into the cooling water system.

- When lake levels are high enough, water flows into the forebay through flap gates in the wall to the tunnel shaft, and is conducted to the No. 2 Pump House via the tunnel that runs underneath the plant, approximately 200" below grade. The No. 2 Pump House creates the draw that brings water in.
- 144 MGD current flow based on current and fixed pump configuration and operation
- 88% reduction in flows from the original design
- Single low lift pump
- Other than a bar rack to capture large debris, the Main Intake is unscreened.
- Velocity could not be calculated by the permittee due to the Intake configuration.
- The Main Intake is the source water for the No. 2 Pump House, which provides water to Indiana Harbor Long Carbon, Plant 1, and the majority of Plant 2.

No. 2 Pump House

- Main Intake source
- The No. 2 Pump House was originally constructed in the early 1950s superseding the construction of the Master Recycle System. Located internal to the plant near the Turning Basin of the IHSC; No. 2 Pump House withdraws raw water from a constructed forebay within the pump house fed by a 2,809 foot long subterranean tunnel serviced by the Main Intake. Water level in the forebay is maintained by a single low life pump, or via passive flow of Lake Michigan through the Main Intake structure weir flap gates (dependent on lake levels). The No. 2 Pump House services the large volume once-through cooling water needs of the No. 2 AC Station and No. 5 & 6 Blast Furnaces; and lesser volume needs of other production lines in Plant 2 including make-up water to the MRS.
- 115 MGD current flow based on current and fixed pump configuration and operation
- 68 % reduction from original design
- 3 pumps (Two circulating water pumps and one service water pump) operate continuously
- Bar racks present
- 5 "Envirex" brand vertical traveling screens (single entry/exit) deployed side by side in a common wet well. Two screens have been modified to function as fixed panel screens; all screens are fitted with 3/8" mesh screens.
- The screens are designed with a screen wash system to remove any impinged debris and/or fish, which are washed into a common collection trough running along the length of the screen structures below floor level. The contents of the trough are returned to a screened sump/basket and manually discarded as necessary.
- 0.81 f/s velocity under normal operating conditions as calculated by the permittee
- 2.51 f/s total rated capacity velocity as calculated by the permittee


NO. 2 PUMP HOUSE
TUNNEL FOREBAY
LOW LIFT PUMPS
ARCELORMITTAL USA INC
EAST MAIN INTAKE AND
NO. 2 PUMP HOUSE
AUGUST 3, 2011
CREATED BY IRA

Based on an evaluation of the documents and information provided by the ArcelorMittal Indiana Harbor East facility, IDEM has made a BTA determination that the existing CWIS is BTA based on BPJ for the following reasons:

I. There has been a substantial reduction in water intake demand since the original study.

II. There has been a reduction in the number of pumps running simultaneously which is associated with a decrease in intake water demand due to demolition and removal of infrastructure processes, construction of the Master Recycle System, and in conjunction with improvements in iron and steel production technologies.

ArcelorMittal Indiana Harbor East must ensure operation of all intakes in a manner that will minimize adverse environmental impacts. The permittee is being required to conduct a two year entrainment study and a two year impingement study within one year of the permit effective date to further characterize the nature and extent of any environmental impacts from the cooling water intake structures (Main Intake and No. 7 Pump House) in a scientifically valid manner. Confirmation studies are required to be conducted five years after the initial two year studies have been completed. Fish returns shall be evaluated for all intakes to determine if they would minimize fish mortality.

The Main Intake and No. 7 Pump House have been chosen as the representative intake structures for the required studies. Because of the configuration of the Main Intake and No. 2 Pump House, it is not practical at this time to impose the studies at the No. 2 Pump House. Because the Main Intake supplies the No. 2 Pump House with water, reducing impingement/entrainment at the Main Intake should result in reduced impingement/entrainment at the No. 2 Pump House.

ArcelorMittal shall provide advance notice to IDEM of any proposed changes to the CWISs or proposed changes to operations at the facility that affect the information taken into account in the current BTA evaluation.

This determination will be reassessed at the next permit reissuance to ensure that the intake structures continue to meet the requirements of Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326).

11. Permit Processing/Public Comment/Appeal Process

Pursuant to IC 13-15-5-1, IDEM will publish a general notice in the newspaper with the largest general circulation within the above county. A 30-day comment period is available in order to solicit input from interested parties, including the general public. Comments concerning the draft permit should be submitted in accordance with the procedure outlined in the enclosed public notice form.

Attachment I
Facility Outfall Location Map


Figure A NPDES Application May 2009
[Revised July 2011]
ArcelorMittal USA Inc. (IH East)
East Chicago, Indiana
NPDES Permit No. IN0000094
0
0.5
1 mile
Approximate Property Boundary
011
NPDES Outfall
No. 7 Pump House
Main Intake
018
014
013
011
008
007
005
003
019
Buffington
EAST CHICAGO

Attachment II
Manufacturing Process Flow Diagrams

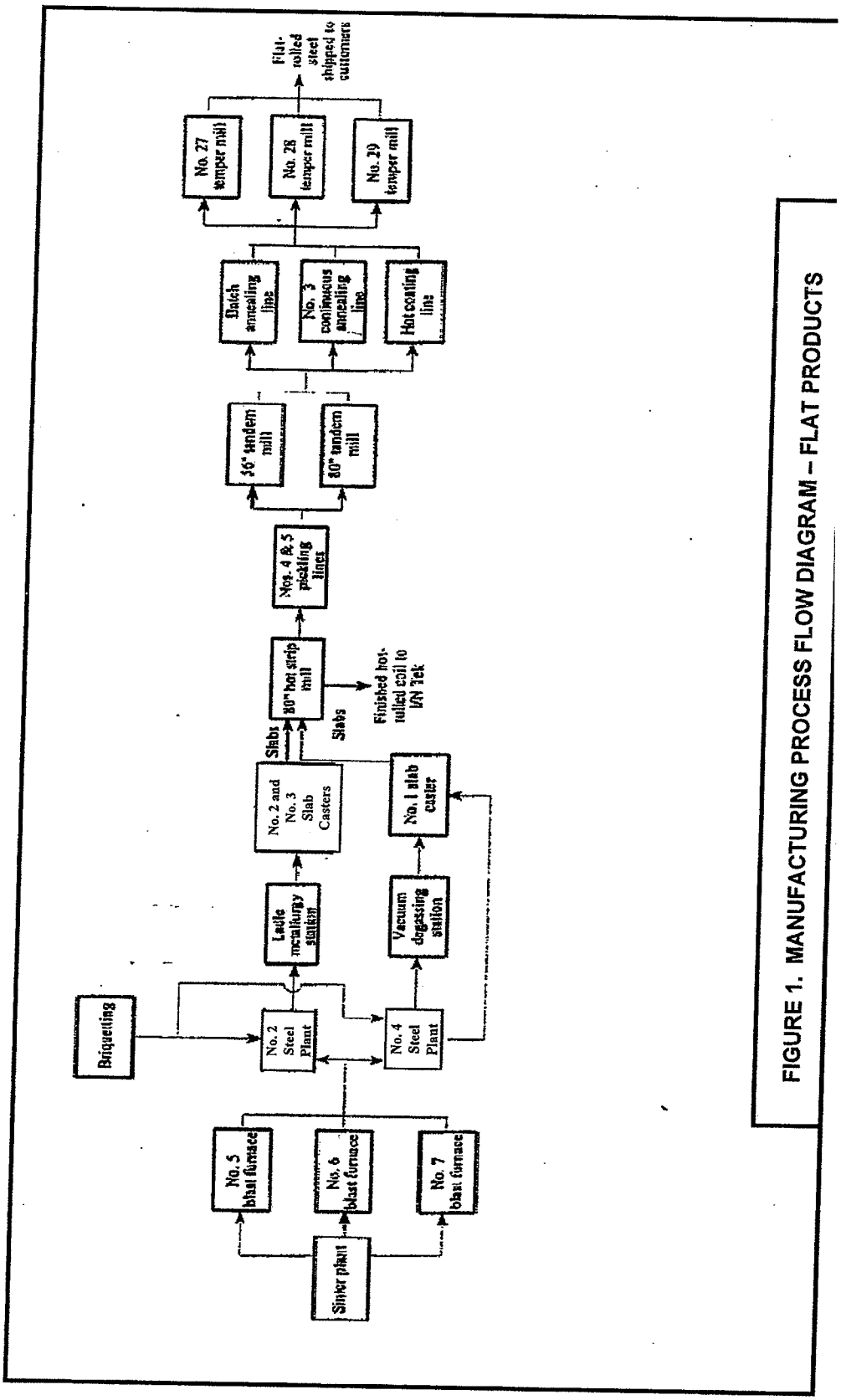


FIGURE 1. MANUFACTURING PROCESS FLOW DIAGRAM – FLAT PRODUCTS

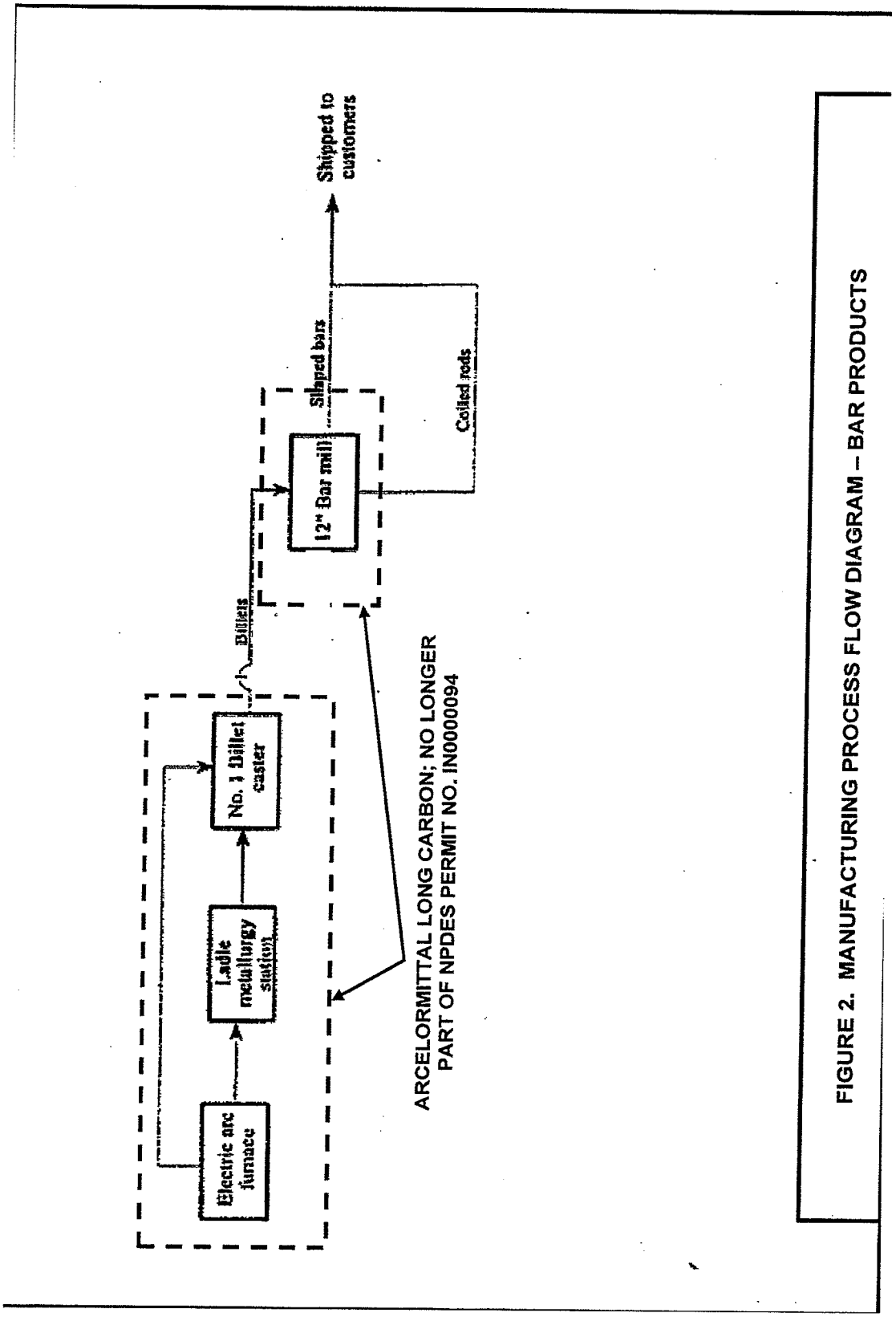


FIGURE 2. MANUFACTURING PROCESS FLOW DIAGRAM – BAR PRODUCTS

Attachment III
Overall Diagram of Treatment and Recycle Systems

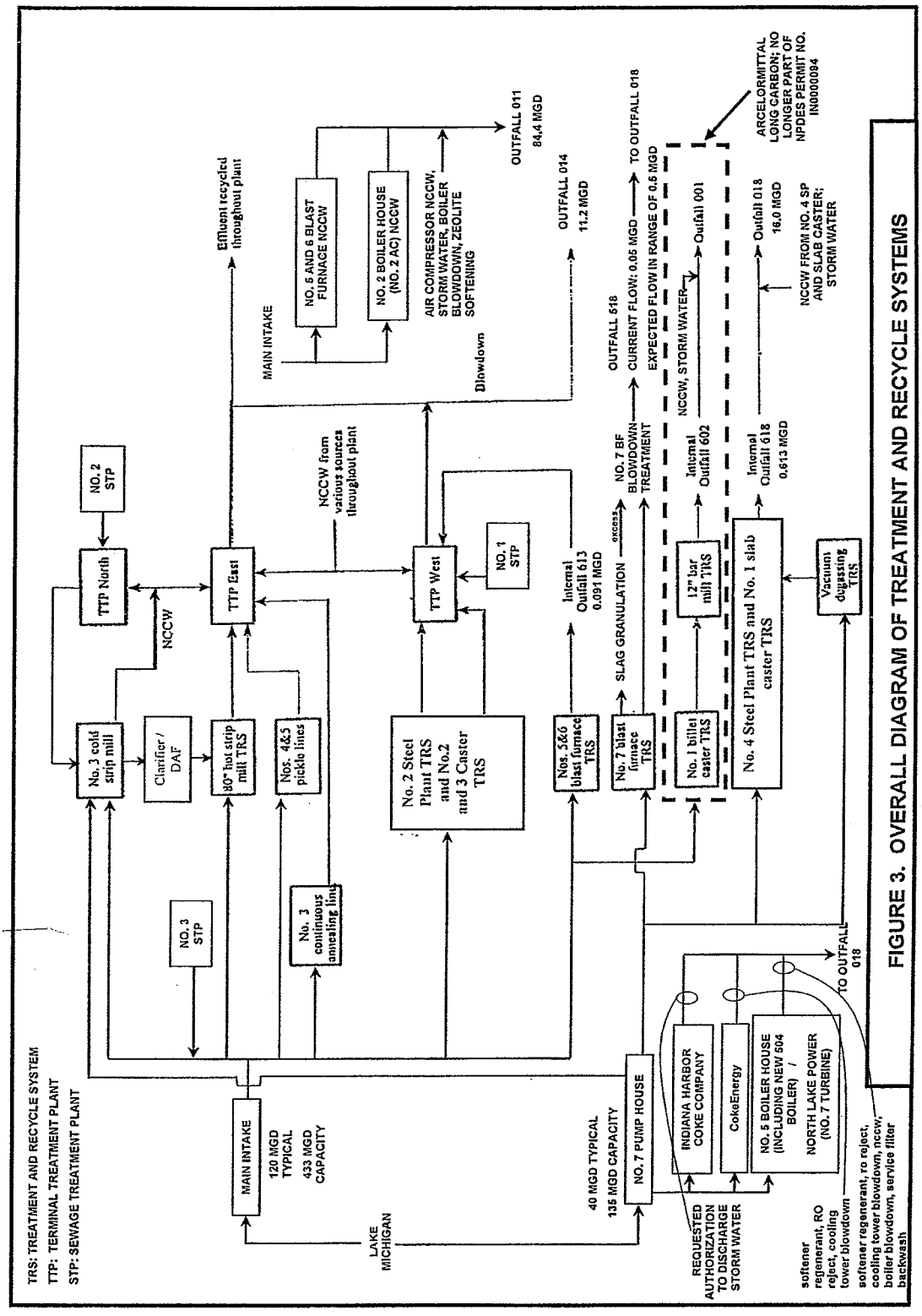


FIGURE 3. OVERALL DIAGRAM OF TREATMENT AND RECYCLE SYSTEMS

Attachment IV
Technology-Based Effluent Limitations

OUTFALL 518 TECHNOLOGY BASED EFFLUENT LIMITATIONS

Production Unit	Production (tons/day)		TSS		Ammonia-N		Total Cyanide		Phenols (4AAP)	
			Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
7 Blast Furnace		ELG (lbs per 1000 lbs product)	0.00438	0.0117	0.00292	0.00876	0.000292	0.000584	0.0000292	0.0000584
Ironmaking 420.34	12419.9	Mass Limit (pounds)	108.80	290.63	72.53	217.60	7.25	14.51	0.73	1.45

	Oil & Grease		TRC	Total Lead		Total Zinc	
	Monthly Avg	Daily Max	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
ELG (lbs per 1000 lbs product)		0.00292	0.000146	0.0000876	0.000263	0.000131	0.000394
Mass Limit (pounds)		72.53	3.63	2.18	6.53	3.25	9.79

OUTFALL 613 TECHNOLOGY BASED EFFLUENT LIMITATIONS

Production Unit	Production (tons/day)		TSS		Ammonia-N		Total Cyanide		Phenols (4AAP)	
			Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
5&6 Blast Furnace		ELG (lbs per 1000 lbs product)	0.026	0.0782	0.00292	0.00876	0.00087	0.00175	0.0000292	0.0000584
Ironmaking 420.32/33 (a)	5501.4	Mass Limit (pounds)	286.07	860.42	32.13	96.38	9.57	19.25	0.32	0.64

	TRC	Total Lead		Total Zinc	
	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
ELG (lbs per 1000 lbs product)	0.000146	0.0000876	0.000263	0.000131	0.000394
Mass Limit (pounds)	1.61	0.96	2.89	1.44	4.34

OUTFALL 618 TECHNOLOGY BASED EFFLUENT LIMITATIONS

Production Unit	Production (tons/day)		TSS		Oil & Grease		Total Lead*		Total Zinc*	
			Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
No. 4 BOF		ELG (lbs per 1000 lbs product)	0.0229	0.0687			0.000138	0.000413	0.000207	0.00062
BOF Steel Making W-OC 420.42/43 (c)	9469.7	Mass Limit (pounds)	433.71	1301.14		0.00	2.61	7.82	3.92	11.74
No. 1 Caster		ELG (lbs per 1000 lbs product)	0.026	0.078	0.0078	0.0234	0.0000313	0.0000939	0.0000469	0.000141
Continuous Casting 420.62/63	9464.3	Mass Limit (pounds)	492.14	1476.43	147.64	442.93	0.59	1.78	0.89	2.67
RHOB		ELG (lbs per 1000 lbs product)	0.00261	0.0073			0.0000313	0.0000939	0.0000469	0.000141
Vacuum Degassing 420.54	7859.8	Mass Limit (pounds)	41.03	114.75		0.00	0.49	1.48	0.74	2.22
Outfall 618 Total		Mass Limit (pounds)	966.88	2892.32	147.64	442.93	3.70	11.08	5.55	16.63

OUTFALL 014 TECHNOLOGY BASED EFFLUENT LIMITATIONS
40 CFR PART 420 - IRON AND STEEL MANUFACTURING POINT SOURCE CATEGORY

Production Unit	Production (tons/day)		TSS		Oil & Grease**		Total Lead*		Total Zinc*		Napthalene		TCE	
			Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
80" Hot Strip Mill		ELG (lbs per 1000 lbs product)	0.16	0.427	0.035663	0.107	0.000108	0.000325	0.000163	0.000488				
Hot Forming Strip 420.72/77 (c)(1)	17636.8	Mass Limit (pounds)	5643.78	15061.83	1257.97	3774.28	3.81	11.46	5.75	17.21				
2A Blooming Mill	idle	ELG (lbs per 1000 lbs product)	0.083	0.221	0.018431	0.0553	0.0000584	0.000175	0.0000876	0.000263				
Hot Forming Primary w/s 420.72/77 (a)(2)	0	Mass Limit (pounds)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
21" Bar Mill	idle	ELG (lbs per 1000 lbs product)	0.134	0.357	0.0298	0.0894	0.0000834	0.00025	0.000125	0.000375				
Hot Forming Section 420.72/77 (b)(1)	0	Mass Limit (pounds)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4&5 Pickle Lines, CAL and Normalizer		ELG (lbs per 1000 lbs product)	0.035	0.0818	0.0117	0.035	0.000175	0.000526	0.000234	0.000701				
HCl Pickling SSP w/fs 420.92/93 (b)(2)	11654.4	Mass Limit (pounds)	815.81	1906.66	272.71	815.81	4.08	12.26	5.45	16.34				
Pickling Line Fume Scrubbers	# of Fume Scrubbers	ELG (kgs per day per scrubber)	2.45	5.72	0.819	2.45	0.0123	0.0368	0.0164	0.0491				
Fume Scrubbers 420.92/93 (b)(4)	3	Mass Limit (pounds)	16.17	37.75	5.41	16.17	0.08	0.24	0.11	0.32				
80" Tandem Mill		ELG (lbs per 1000 lbs product)	0.00313	0.00626	0.00104	0.00261	0.0000156	0.0000469	0.0000104	0.0000313		0.0000104		0.0000156
Cold Rolling MS/REC 420.102/103 (a)(2)	9359.5	Mass Limit (pounds)	58.59	117.18	19.47	48.86	0.29	0.88	0.19	0.59		0.19		0.29
56" Tandem Mill		ELG (lbs per 1000 lbs product)	0.00313	0.00626	0.00104	0.00261	0.0000156	0.0000469	0.0000104	0.0000313		0.0000104		0.0000156
Cold Rolling MS/REC 420.102/103 (a)(2)	3933.3	Mass Limit (pounds)	24.62	49.24	8.18	20.53	0.12	0.37	0.08	0.25		0.08		0.12
#29 Temper Mill		ELG (lbs per 1000 lbs product)	0.0113	0.0225	0.00376	0.00939	0.0000563	0.000169	0.0000376	0.000113		0.0000376		0.0000563
Cold Rolling MS/REC 420.102/103 (a)(4)	5476.1	Mass Limit (pounds)	123.76	246.42	41.18	102.84	0.62	1.85	0.41	1.24		0.41		0.62
#28 Temper Mill		ELG (lbs per 1000 lbs product)	0.0501	0.1	0.0167	0.0417	0.00025	0.000751	0.000167	0.000501		0.000167		0.00025
Cold Rolling MS/DA 420.102/103 (a)(5)	5865.3	Mass Limit (pounds)	587.70	1173.06	195.90	489.17	2.93	8.81	1.96	5.88		1.96		2.93
4 Aluminize 3 & 5 Galvinize		ELG (lbs per 1000 lbs product)	0.0751	0.175	0.025	0.0751	0.000376	0.00113	0.0005	0.0015				
Hot Coating SS 402.122/123 (a)(1)	1294.9	Mass Limit (pounds)	194.49	453.22	64.75	194.49	0.97	2.93	1.29	3.88				
Alkaline Cleaning		ELG (lbs per 1000 lbs product)	0.0438	0.102	0.0146	0.0438								
Continuous 420.112 (b)	1294.9	Mass Limit (pounds)	113.43	264.16	37.81	113.43	0.00	0.00	0.00	0.00				
No. 2 BOF		ELG (lbs per 1000 lbs product)	0.0104	0.0312			0.0000626	0.000188	0.0000939	0.000282				
BOF Steelmaking W-SC 420.42/43 (b)	7681.4	Mass Limit (pounds)	159.77	479.32			0.96	2.89	1.44	4.33				
2 BOF Casters		ELG (lbs per 1000 lbs product)	0.00261	0.0073	0.00104	0.00313	0.0000313	0.0000939	0.0000469	0.000141				
Continuous Casting 420.64	7681.4	Mass Limit (pounds)	40.10	112.15	15.98	48.09	0.48	1.44	0.72	2.17				
5&6 Blast Furnace		ELG (lbs per 1000 lbs product)	0.026	0.0782			0.0000876	0.000263	0.000131	0.000394				
Iron Blast Furnace 420.32/33 (a)	5501.4	Mass Limit (pounds)	286.07	860.42			0.96	2.89	1.44	4.34				
Outfall 014 Total		Mass Limit (pounds)	8064.30	20761.41	1919.35	5623.66	15.31	46.03	18.86	56.54	0.00	2.65	0.00	3.96

* BPJ metals allowance, from prior permit, included for Hot Forming
** BPJ for monthly average oil & grease H80" Hot Strip Mill, 2A Blooming Mill, and 21" Bar Mill based on 1/3 of the Daily Max

TBELs for Ammonia, Phenols, TRC, and Total Cyanide have been calculated and applied at Internal Outfall 613. Please see page 67.

Attachment V
IDEM Reasonable Potential To Exceed, Water Quality Based
Effluent Limit and Antidegradation Tables

TABLE 1 REASONABLE POTENTIAL TO EXCEED

ARCELORMITTAL USA - INDIANA HARBOR EAST
OUTFALL 007 (0.0037 mgd)

PARAMETER	MONTHLY AVERAGE					DAILY MAXIMUM					PEL		PEQ > PEL	
	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Monthly Average@	Daily Maximum	Monthly Average	Daily Maximum
Ammonia-N (mg/l) * :														
Summer %					0.62	0.39	15	0.7	1.6	0.62	0.74	1.5	No	No
Winter %					0.41	0.37	45	0.9	1.1	0.41	0.74	1.5	No	No

* Effluent data were obtained from MMRs for the period July 2005 through June 2010.

% Summer months are July through September, and winter months are October through June.

@ Monthly average PELs were calculated based on the applicable sampling frequency in a month.

TABLE 2 REASONABLE POTENTIAL TO EXCEED

ARCELORMITTAL USA - INDIANA HARBOR EAST OUTFALL 011 (84.7 mgd)

PARAMETER	MONTHLY AVERAGE					DAILY MAXIMUM					PEL		PEQ > PEL	
	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Monthly Average@	Daily Maximum	Monthly Average	Daily Maximum
Mercury (ng/l) **					2.6	0.85	3	0.6	3.0	2.6	1.3	3.2	Yes	No
Chloride (mg/l) $	18.5	2	0.6	3.8	70	25.3	8	0.6	1.9	48	82	160	No	No
Sulfate (mg/l) $	25.2	2	0.6	3.8	96	32.5	8	0.6	1.9	62	110	230	No	No

** Effluent data were obtained from the July 1999 and August 2001 TMDL studies and from the December 2008 Form 2C.

$ Effluent data were obtained from the ArcelorMittal 6-week chemicals and toxic metals monitoring program in 1996, and the July 1999 and April 2000 TMDL studies.

@ Monthly average PELs were calculated based on the applicable sampling frequency in a month.

TABLE 3 REASONABLE POTENTIAL TO EXCEED

ARCELORMITTAL USA - INDIANA HARBOR EAST OUTFALL 014 (11.5 mgd)

PARAMETER	MONTHLY AVERAGE					DAILY MAXIMUM					PEL		PEQ > PEL	
	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Monthly Average@	Daily Maximum	Monthly Average	Daily Maximum
Lead (ug/l) *	3.4	59	0.3	1.0	3.4	13	866	0.6	0.9	12	61	120	No	No
Mercury (ng/l) **					4.0	1.33	3	0.6	3.0	4.0	1.3	3.2	Yes	Yes
Zinc (ug/l) *	110	59	0.4	1.0	110	274	867	0.7	0.9	250	180	360	No	No
Chloride (mg/l) +					300	100	3	0.6	3.0	300	310	620	No	No
Fluoride (mg/l) $					5.3	1.4	2	0.6	3.8	5.3	5.3	11	No	No
Sulfate (mg/l) $					190	50.8	2	0.6	3.8	190	200	410	No	No
Naphthalene (ug/l) *	5.5	60	0.0	1.0	5.5	5.5	181	0.0	1.0	5.5	200	400	No	No
Tetrachloroethylene (ug/l) *	1.7	60	0.2	1.0	1.7	3	181	0.3	0.9	2.7	480	960	No	No
Ammonia-N (mg/l) * :														
Summer %	0.59	15	0.5	1.4	0.83	1.2	197	0.8	0.8	0.96	4.2	8.4	No	No
Winter %	0.73	45	0.5	1.1	0.80	1.5	587	0.8	0.8	1.2	4.2	8.4	No	No

* Effluent data were obtained from MMRs for the period July 2005 through June 2010.
Lead and zinc data collected in February 2007 were excluded as outliers based on a wastewater treatment malfunction that was corrected.

** Effluent data were obtained from the July 1999 and August 2001 TMDL studies and from the December 2008 Form 2C.

+ Effluent data were obtained from the July 1999 and April 2000 TMDL studies and from the April 2001 permit renewal application.

$ Effluent data were obtained from the July 1999 and April 2000 TMDL studies.

% Summer months are July through September, and winter months are October through June.

@ Monthly average PELs were calculated based on the applicable sampling frequency in a month.

TABLE 4 REASONABLE POTENTIAL TO EXCEED ARCELORMITTAL USA - INDIANA HARBOR EAST OUTFALL 018 (15.9 mgd)

PARAMETER	MONTHLY AVERAGE					DAILY MAXIMUM					PEL		PEQ > PEL	
	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Monthly Average@	Daily Maximum	Monthly Average	Daily Maximum
Lead (ug/l) *	16	60	1.2	1.0	16	149	636	3.1	0.7	100	38	77	No	Yes
Mercury (ng/l) **					7.0	2.69	4	0.6	2.6	7.0	1.3	3.2	Yes	Yes
Selenium (ug/l) #					19	3.1	1	0.6	6.2	19	28	57	No	No
Zinc (ug/l) *	260	60	1.7	1.0	260	2400	638	5.0	0.7	1700	180	360	Yes	Yes
Chloride (mg/l) $					230	61	2	0.6	3.8	230	240	480	No	No
Fluoride (mg/l) $					3.0	1.0	3	0.6	3.0	3.0	3.8	7.6	No	No
Sulfate (mg/l) $					200	67	3	0.6	3.0	200	200	410	No	No
Ammonia-N (mg/l) * :														
Summer %	0.17	15	0.6	1.5	0.26	0.307	162	0.8	0.8	0.25	1.6	3.1	No	No
Winter %	0.41	45	0.6	1.1	0.45	0.754	464	0.9	0.8	0.60	1.6	3.1	No	No

* Effluent data were obtained from MMRs for the period July 2005 through June 2010.

** Effluent data were obtained from the July 1999 and August 2001 TMDL studies and from the December 2008 and December 2010 Form 2C updates.

Effluent data were obtained from the December 2010 Form 2C update.

$ Effluent data were obtained from the July 1999 and April 2000 TMDL studies and, except for chloride, from the December 2010 Form 2C update.

% Summer months are July through September, and winter months are October through June.

@ Monthly average PELs were calculated based on the applicable sampling frequency in a month.

TABLE 5 REASONABLE POTENTIAL TO EXCEED

ARCELORMITTAL USA - INDIANA HARBOR EAST
OUTFALL 019 (0.1 mgd)

PARAMETER	MONTHLY AVERAGE					DAILY MAXIMUM					PEL		PEQ > PEL	
	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Monthly Average@	Daily Maximum	Monthly Average	Daily Maximum
Total Residual Chlorine (mg/l) *					3.0	1.5	20	3.1	2.0	3.0	0.010	0.020	Yes	Yes

* Effluent data were obtained from MMRs for the period July 2005 through June 2010.

@ Monthly average PELs were calculated based on the applicable sampling frequency in a month.

TABLE 6 REASONABLE POTENTIAL TO EXCEED FOR WHOLE EFFLUENT TOXICITY ARCELORMITTAL USA - INDIANA HARBOR EAST

Outfall 014*

Parameter	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	WLA	PEQ>WLA	WQBEL	
								Monthly Average	Daily Maximum
Acute WET (TUa)	<1.0	8	0.6	1.9	<1.9	1.0	NO	--	Not Required
Chronic WET (TUc)	5.0	8	0.6	1.9	9.5	10.0	NO	Not Required	--

Outfall 018*

Parameter	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	WLA	PEQ>WLA	WQBEL	
								Monthly Average	Daily Maximum
Acute WET (TUa)	<1.0	8	0.6	1.9	<1.9	1.0	NO	--	Not Required
Chronic WET (TUc)	N.A.								

* Data Sources:
014 - October 1996 to May 1998 data collected in accordance with the June 1996 permit. The maximum value for chronic WET is based on *Ceriodaphnia dubia* .
018 - October 1996 to May 1998 data collected in accordance with the June 1996 permit.
N.A. : The existing NPDES permit only required acute toxicity testing.

TABLE 7
WATER QUALITY-BASED EFFLUENT LIMITATIONS
FOR ARCELORMITTAL USA - INDIANA HARBOR EAST

Parameter	Quantity or Loading			Quality or Concentration		
	Monthly Average	Daily Maximum	Units	Monthly Average @	Daily Maximum	Units
Outfall 011 (84.7 mgd)						
Mercury	0.00092	0.0023	lbs/day	1.3	3.2	ng/l
Total Residual Chlorine	8.5	19	lbs/day	12	27	ug/l
Outfall 014 (11.5 mgd)						
Lead	5.9	12	lbs/day	61	120	ug/l
Mercury	0.00012	0.00031	lbs/day	1.3	3.2	ng/l
Zinc	17	35	lbs/day	180	360	ug/l
Ammonia (as N)						
Summer +	400	810	lbs/day	4,200	8,400	ug/l
Winter +	400	810	lbs/day	4,200	8,400	ug/l
Naphthalene	19	38	lbs/day	200	400	ug/l
Tetrachloroethylene	46	92	lbs/day	480	960	ug/l
Total Residual Chlorine	1.2	2.9	lbs/day	13	30	ug/l
Whole Effluent Toxicity (WET)						
Acute #					1.0	TUa
Chronic &				10.0		TUc
Outfall 018 (15.9 mgd)						
Lead	5.0	10	lbs/day	38	77	ug/l
Mercury	0.00017	0.00042	lbs/day	1.3	3.2	ng/l
Zinc	24	48	lbs/day	180	360	ug/l
Ammonia (as N)						
Summer +	210	410	lbs/day	1,600	3,100	ug/l
Winter +	210	410	lbs/day	1,600	3,100	ug/l
Total Residual Chlorine	1.7	4.0	lbs/day	13	30	ug/l
Whole Effluent Toxicity (WET)						
Acute #					1.0	TUa
Chronic &				7.7		TUc
Outfall 019 (0.1 mgd)						
Total Residual Chlorine	0.0083	0.017	lbs/day	10	20	ug/l

@ Monthly average WQBELs were calculated based on the applicable sampling frequency in a month.
+ Summer months are July through September, and Winter months are October through June.
# This value is the Toxicity Reduction Evaluation (TRE) trigger for acute WET testing.
& This value is the Toxicity Reduction Evaluation (TRE) trigger for chronic WET testing.

TABLE 8
ANTIDEGRADATION
FOR ARCELORMITTAL USA - INDIANA HARBOR EAST

Parameter	Existing Permit Limits				Proposed Permit Limits				New or Increased Permit Limit for a Non-BCC or New or Increased Loading of a BCC?			
	Loading (lbs/day)		Concentration (ug/l)		Loading (lbs/day)		Concentration (ug/l)		Loading (lbs/day)		Concentration (ug/l)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Outfall 003 (Emergency Overflow)												
Total Suspended Solids	Report	Report	Report	Report	Report	Report	Report	Report				
Oil & Grease	Report	Report	Report	Report	Report	Report	Report	Report				
Lead	Report	Report	Report	Report	Report	Report	Report	Report				
Zinc	Report	Report	Report	Report	Report	Report	Report	Report				
Ammonia (as N)	Report	Report	Report	Report	Report	Report	Report	Report				
Free Cyanide	--	--	--	--	Report	Report	Report	Report				
Total Cyanide	Report	Report	Report	Report	--	--	--	--				
Phenols (4AAP)	Report	Report	Report	Report	Report	Report	Report	Report				
Naphthalene	Report	Report	Report	Report	Report	Report	Report	Report				
Tetrachloroethylene	Report	Report	Report	Report	Report	Report	Report	Report				
pH (s.u.)	--	--	6.0 - 9.0		--	--	6.0 - 9.0				No	
Outfall 005 (Emergency Overflow)												
Total Suspended Solids	Report	Report	Report	Report								
Oil & Grease	Report	Report	Report	Report								
Lead	Report	Report	Report	Report								
Zinc	Report	Report	Report	Report								
Ammonia (as N)	Report	Report	Report	Report								
Total Cyanide	Report	Report	Report	Report								
Phenols (4AAP)	Report	Report	Report	Report								
Naphthalene	Report	Report	Report	Report								
Tetrachloroethylene	Report	Report	Report	Report								
pH (s.u.)	--	--	6.0 - 9.0		Outfall 005 Removed From Permit							
Outfall 008 (Emergency Overflow)												
Oil & Grease	--	--	--	Report	Report	Report	Report	Report				
Lead	--	--	--	Report	Report	Report	Report	Report				
Zinc	--	Report	--	Report	Report	Report	Report	Report				
Ammonia (as N)	--	Report	--	Report	Report	Report	Report	Report				
Free Cyanide	--	--	--	--	Report	Report	Report	Report				
Total Cyanide	--	--	--	Report	--	--	--	--				
Phenols (4AAP)	--	--	--	Report	Report	Report	Report	Report				
Total Residual Chlorine	--	--	--	--	Report	Report	Report	Report				
Temperature (°F)	--	--	--	Report	--	--	Report	Report				
Thermal Discharge (BTU/Hr.)	--	--	--	--	Report	Report	--	--				
pH (s.u.)	--	--	6.0 - 9.0		--	--	6.0 - 9.0				No	
Outfall 011 (84.7 mgd)												
Oil & Grease	--	--	--	Report	--	Report	--	Report				
Lead	--	--	--	Report	--	Report	--	Report				
Mercury	--	--	--	--	0.00092	0.0023	0.0013	0.0032	New (1)	New (1)	New (1)	New (1)
Zinc	--	Report	--	Report	--	Report	--	Report				
Fluoride	--	--	--	--	Report	Report	Report	Report				
Ammonia (as N)	--	Report	--	Report	--	Report	--	Report				
Free Cyanide	--	--	--	--	Report	Report	Report	Report				
Total Cyanide	--	--	--	Report	--	--	--	--				
Phenols (4AAP)	--	--	--	Report	--	Report	--	Report				
Total Residual Chlorine	--	--	20	40	8.5	19	12	27	New (2)	New (2)	No	No
Temperature (°F)	--	--	--	Report	--	--	Report	Report				
Thermal Discharge (BTU/Hr.)	--	Report	--	--	Report	Report	--	--				
pH (s.u.)	--	--	6.0 - 9.0		--	--	6.0 - 9.0				No	

Footnotes:

Significant Lowering of Water Quality?

(1) The new limits for mercury are based on a reasonable potential analysis using effluent monitoring data. The new limits are not a result of changes in pollutant loading and will not allow an increase in pollutant loading since the projected effluent quality is greater than the proposed effluent limits and the existing discharge flow was used to calculate the proposed mass limits. Therefore, the new limits do not cause a lowering of water quality for mercury and antidegradation under 327 IAC 5-2-11.3(a) is satisfied. The new limits fall under the antidegradation exemption in 327 IAC 5-2-11.3(b)(1)(C)(ii). This exemption applies to 327 IAC 5-2-11.7(a)(2) so the new limits do not cause a significant lowering of water quality in the OSRW.

(2) The current permit has a concentration limit for this parameter that is less stringent than a WQBEL in the proposed permit. The existing effluent flow was used to calculate the WQBELs for the proposed permit so the new limit will not result in a calculated concentration increase outside of the mixing zone under 327 IAC 5-2-11.3(b)(1)(B)(i) and antidegradation under 327 IAC 5-2-11.3(b) is satisfied. Since the new limit does not cause a significant lowering under 327 IAC 5-2-11.3(b)(1)(B), it does not cause a significant lowering in the OSRW in accordance with Non-Rule Policy Document Water-002-NPD.

TABLE 9
ANTIDEGRADATION
FOR ARCELORMITTAL USA - INDIANA HARBOR EAST

Parameter	Existing Permit Limits				Proposed Permit Limits				New or Increased Permit Limit for a Non-BCC or New or Increased Loading of a BCC?			
	Loading (lbs/day)		Concentration (ug/l)		Loading (lbs/day)		Concentration (ug/l)		Loading (lbs/day)		Concentration (ug/l)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Outfall 013 (Emergency Overflow)												
Total Suspended Solids	Report	Report	Report	Report	Report	Report	Report	Report				
Oil & Grease	Report	Report	Report	Report	Report	Report	Report	Report				
Lead	Report	Report	Report	Report	Report	Report	Report	Report				
Zinc	Report	Report	Report	Report	Report	Report	Report	Report				
Ammonia (as N)	Report	Report	Report	Report	Report	Report	Report	Report				
Free Cyanide	--	--	--	--	Report	Report	Report	Report				
Total Cyanide	Report	Report	Report	Report	--	--	--	--				
Phenols (4AAP)	Report	Report	Report	Report	Report	Report	Report	Report				
Naphthalene	Report	Report	Report	Report	Report	Report	Report	Report				
Tetrachloroethylene	Report	Report	Report	Report	Report	Report	Report	Report				
pH (s.u.)	--	--	6.0 - 9.0		--	--	6.0 - 9.0				No	
Outfall 014 (11.5 mgd)												
Total Suspended Solids	6,620	17,092	Report	Report	6,620	17,092	Report	Report	No	No		
Oil and Grease	--	4,568	--	15,000	1,553	4,568	10,000	15,000	New (1)	No	New (1)	No
Lead	11.58	31.08	Report	Report	5.9	12	61	120	No	No	New (2)	New (2)
Mercury	--	--	--	--	0.00012	0.00031	0.0013	0.0032	New (3)	New (3)	New (3)	New (3)
Zinc	14.91	44.69	Report	Report	14.91	35	Report	Report	No	No		
Flouride	--	--	--	--	Report	Report	Report	Report				
Ammonia (as N)	499	999	Report	Report	Report	Report	Report	Report				
Free Cyanide	--	--	--	--	Report	Report	Report	Report				
Total Cyanide	7.38	17.14	Report	Report	7.38	17.14	Report	Report	No	No		
Phenols (4AAP)	7.00	16.25	Report	Report	Report	Report	Report	Report				
Naphthalene	--	1.80	--	Report	--	1.80	--	Report		No		
Tetrachloroethylene	--	2.69	--	Report	--	2.69	--	Report		No		
Total Residual Chlorine	--	--	20	40	1.2	2.9	13	30	New (2)	New (2)	No	No
Temperature (°F)	--	--	Report	Report	--	--	Report	Report				
Thermal Discharge (BTU/Hr.)	--	Report	--	--	Report	Report	--	--				
pH (s.u.)	--	--	6.0 - 9.0		--	--	6.0 - 9.0				No	
Internal Outfall 613												
Total Suspended Solids	--	--	Report	Report	Report	Report	Report	Report				
Lead	--	--	Report	Report	Report	Report	Report	Report				
Zinc	--	--	Report	Report	Report	Report	Report	Report				
Ammonia (as N)	100	300	Report	Report	100	300	Report	Report	No	No		
Total Cyanide	8.73	17.41	Report	Report	8.73	17.41	Report	Report	No	No		
Phenols (4AAP)	1.50	3.00	Report	Report	0.32	0.64	Report	Report	No	No		

Footnotes:

Significant Lowering of Water Quality?

(1) A new monthly average mass TBEL and a new monthly average concentration limit for oil and grease are being applied in the proposed permit. The Fact Sheet of the 1996 permit includes the calculation of monthly average and daily maximum TBELs for oil and grease. The TBELs were a combination of the monthly average and daily maximum mass allowed for a number of process operations with separate TBELs. Monthly average TBELs are not provided for Hot Forming operations under 40 CFR 420.72/77. Through application of BPJ, IDEM has calculated monthly average mass limits for Hot Forming operations using 33.33% of the daily maximum calculated under 40 CFR 420.72/77. In the Fact Sheet of the 1996 permit, the total daily maximum allowance for oil and grease calculated for the three Hot Forming operations was 3061 lbs/day and the monthly average allowance for the remaining operations was 533 lbs/day. By adding 33.33% of 3061 lbs/day to 533 lbs/day, the BPJ calculation of the monthly average allowed in the 1996 permit is 1553 lbs/day. The new limit will result in a monthly average oil and grease concentration of greater than 10 mg/l at Outfall 014. Therefore, a new monthly average concentration limit of 10 mg/l for oil and grease is also proposed for Outfall 014 to ensure that the narrative criterion is met. The new monthly average mass and concentration limits do not allow an increase above what was authorized, but not applied in the current permit. The new mass TBEL is a new application of Federal Effluent Limitations Guidelines and the new concentration limit is the result of the new application of a TBEL so both fall under the antidegradation exemption in 327 IAC 5-2-11.3(b)(1)(C)(ii)(DD). Therefore, they do not cause a significant lowering of water quality and antidegradation under 327 IAC 5-2-11.3(b) is satisfied. This exemption applies to 327 IAC 5-2-11.7(a)(2) so the new limit does not cause a significant lowering of water quality in the OSRW.

(2) The current permit has a mass or concentration limit for this parameter that is less stringent than a WQBEL in the proposed permit. The existing effluent flow was used to calculate the WQBELs for the proposed permit so the new limit will not result in a calculated concentration increase outside of the mixing zone under 327 IAC 5-2-11.3(b)(1)(B)(i) and antidegradation under 327 IAC 5-2-11.3(b) is satisfied. Since the new limit does not cause a significant lowering under 327 IAC 5-2-11.3(b)(1)(B), it does not cause a significant lowering in the OSRW in accordance with Non-Rule Policy Document Water-002-NPD.

(3) The new limits for mercury are based on a reasonable potential analysis using effluent monitoring data. The new limits are not a result of changes in pollutant loading and will not allow an increase in pollutant loading since the projected effluent quality is greater than the proposed effluent limits and the existing discharge flow was used to calculate the proposed mass limits. Therefore, the new limits do not cause a lowering of water quality for mercury and antidegradation under 327 IAC 5-2-11.3(a) is satisfied. The new limits fall under the antidegradation exemption in 327 IAC 5-2-11.3(b)(1)(C)(ii). This exemption applies to 327 IAC 5-2-11.7(a)(2) so the new limits do not cause a significant lowering of water quality in the OSRW.

TABLE 10
ANTIDEGRADATION
FOR ARCELORMITTAL USA - INDIANA HARBOR EAST

Parameter	Existing Permit Limits				Proposed Permit Limits				New or Increased Permit Limit for a Non-BCC or New or Increased Loading of a BCC?			
	Loading (lbs/day)		Concentration (ug/l)		Loading (lbs/day)		Concentration (ug/l)		Loading (lbs/day)		Concentration (ug/l)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Outfall 018 (15.9 mgd)												
Oil and Grease	--	--	--	Report	--	--	--	Report				
Lead	Report	Report	Report	Report	5.0	10	38	77	New (1)	New (1)	New (1)	New (1)
Mercury	--	--	--	--	0.00017	0.00042	0.0013	0.0032	New (2)	New (2)	New (2)	New (2)
Selenium	--	--	--	--	Report	Report	Report	Report				
Zinc	Report	Report	Report	Report	24	48	180	360	New (1)	New (1)	New (1)	New (1)
Flouride	--	--	--	--	Report	Report	Report	Report				
Ammonia (as N)	Report	Report	Report	Report	Report	Report	Report	Report				
Free Cyanide	--	--	--	--	Report	Report	Report	Report				
Total Cyanide	Report	Report	Report	Report	--	--	--	--				
Phenols (4AAP)	Report	Report	Report	Report	Report	Report	Report	Report				
Total Residual Chlorine	--	--	20	40	1.7	4.0	13	30	New (3)	New (3)	No	No
Temperature (°F)	--	--	Report	Report	--	--	Report	Report				
Thermal Discharge (BTU/Hr.)	--	Report	--	--	Report	Report	--	--				
pH (s.u.)	--	--	6.0 - 9.0		--	--	6.0 - 9.0				No	
Internal Outfall 418												
Total Suspended Solids	--	--	30,000	100,000								
Oil and Grease	--	--	15,000	20,000								
Arsenic	--	--	--	Report								
Cadmium	--	--	--	Report								
Chromium	--	--	--	Report								
Total Cyanide	--	--	--	Report								
Copper	--	--	--	Report								
Lead	--	--	--	Report								
Mercury	--	--	--	Report								
Nickel	--	--	--	Report								
Selenium	--	--	--	Report								
Zinc	--	--	--	Report								
					Internal Outfall 418 Removed From Permit							
Internal Outfall 518												
Total Suspended Solids	91.24	243.71	Report	Report	91.24	243.71	Report	Report	No	No		
Oil and Grease	--	60.82	Report	Report	--	60.82	--	Report		No		
Lead	1.32	2.28	Report	Report	1.32	2.28	Report	Report	No	No		
Selenium	--	--	--	--	Report	Report	Report	Report				
Zinc	2.73	8.21	Report	Report	2.73	8.21	Report	Report	No	No		
Ammonia (as N)	60.82	182.47	Report	Report	60.82	182.47	Report	Report	No	No		
Total Cyanide	6.08	12.16	Report	Report	6.08	12.16	Report	Report	No	No		
Phenols (4AAP)	0.61	1.22	Report	Report	0.61	1.22	Report	Report	No	No		
Total Residual Chlorine	--	3.04	Report	Report	--	3.04	--	Report		No		
Internal Outfall 618												
Total Suspended Solids	360	720	Report	Report	360	720	Report	Report	No	No		
Oil and Grease	102	216	Report	Report	102	216	Report	Report	No	No		
Lead	2.16	6.48	Report	Report	2.16	6.48	Report	Report	No	No		
Zinc	3.50	10.50	Report	Report	3.50	10.50	Report	Report	No	No		
Outfall 019 (0.1 mgd)												
Total Suspended Solids	--	--	--	Report	--	--	--	Report				
Oil and Grease	--	--	--	Report	--	--	--	Report				
Total Residual Chlorine	--	--	--	Report	0.0083	0.017	10	20	New (1)	New (1)	New (1)	New (1)
pH (s.u.)	--	--	6.0 - 9.0		--	--	6.0 - 9.0				No	

Footnotes:

Significant Lowering of Water Quality?

(1) The new limits for this parameter are based on a reasonable potential analysis using effluent monitoring data. The new limits fall under the antidegradation exemption in 327 IAC 5-2-11.3(b)(1)(C)(ii) so they do not cause a significant lowering of water quality and antidegradation under 327 IAC 5-2-11.3(b) is satisfied. This exemption also applies to 327 IAC 5-2-11.7(a)(2) so the new limits do not cause a significant lowering of water quality in the OSRW.

(2) The new limits for mercury are based on a reasonable potential analysis using effluent monitoring data. The new limits are not a result of changes in pollutant loading and will not allow an increase in pollutant loading since the projected effluent quality is greater than the proposed effluent limits and the existing discharge flow was used to calculate the proposed mass limits. Therefore, the new limits do not cause a lowering of water quality for mercury and antidegradation under 327 IAC 5-2-11.3(a) is satisfied. The new limits fall under the antidegradation exemption in 327 IAC 5-2-11.3(b)(1)(C)(ii). This exemption applies to 327 IAC 5-2-11.7(a)(2) so the new limits do not cause a significant lowering of water quality in the OSRW.

(3) The current permit has a mass or concentration limit for this parameter that is less stringent than a WQBEL in the proposed permit. The existing effluent flow was used to calculate the WQBELs for the proposed permit so the new limit will not result in a calculated concentration increase outside of the mixing zone under 327 IAC 5-2-11.3(b)(1)(B)(i) and antidegradation under 327 IAC 5-2-11.3(b) is satisfied. Since the new limit does not cause a significant lowering under 327 IAC 5-2-11.3(b)(1)(B), it does not cause a significant lowering in the OSRW in accordance with Non-Rule Policy Document Water-002-NPD.

Attachment VI
Treatment System Line Drawings

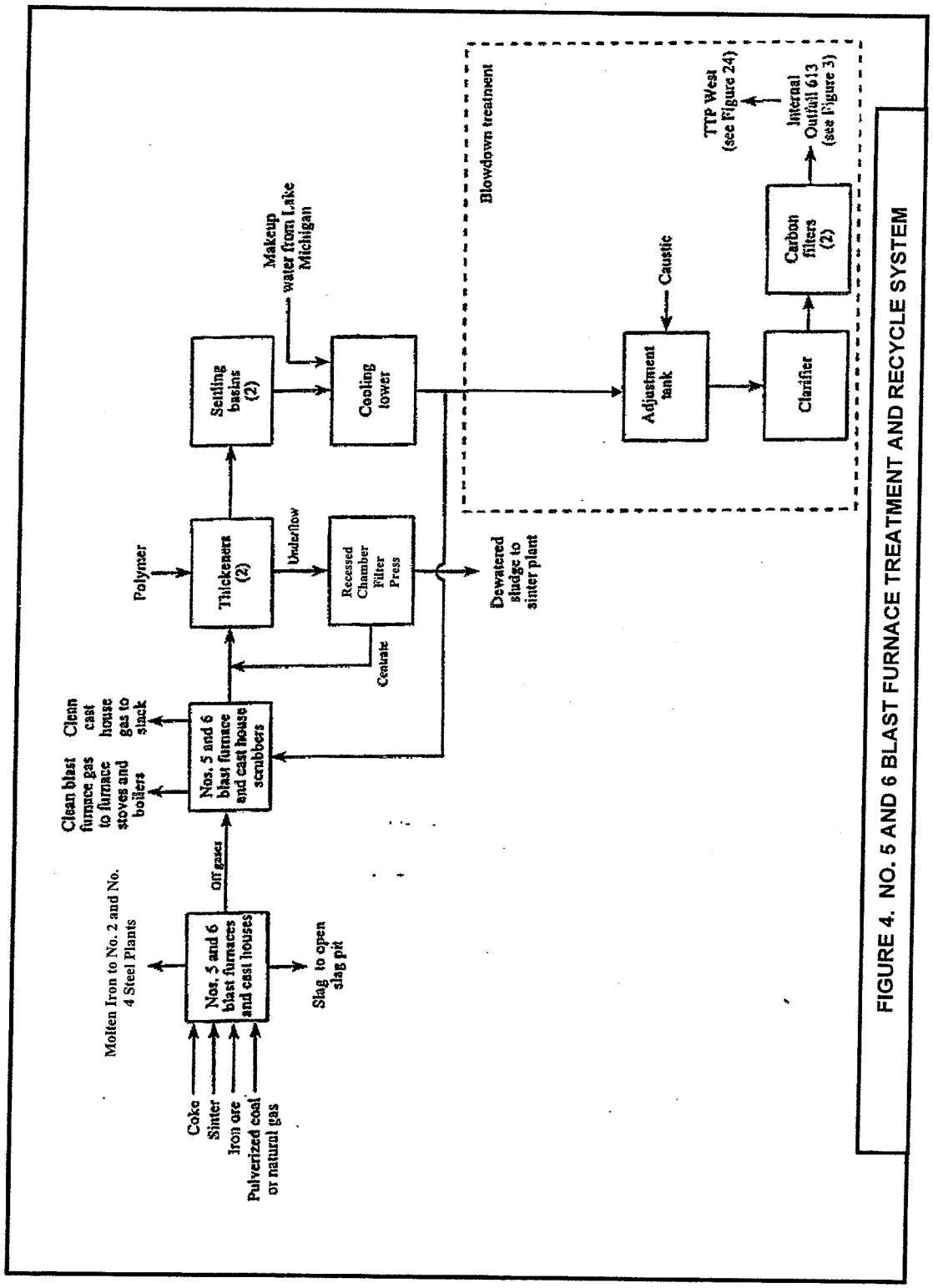


FIGURE 4. NO. 5 AND 6 BLAST FURNACE TREATMENT AND RECYCLE SYSTEM

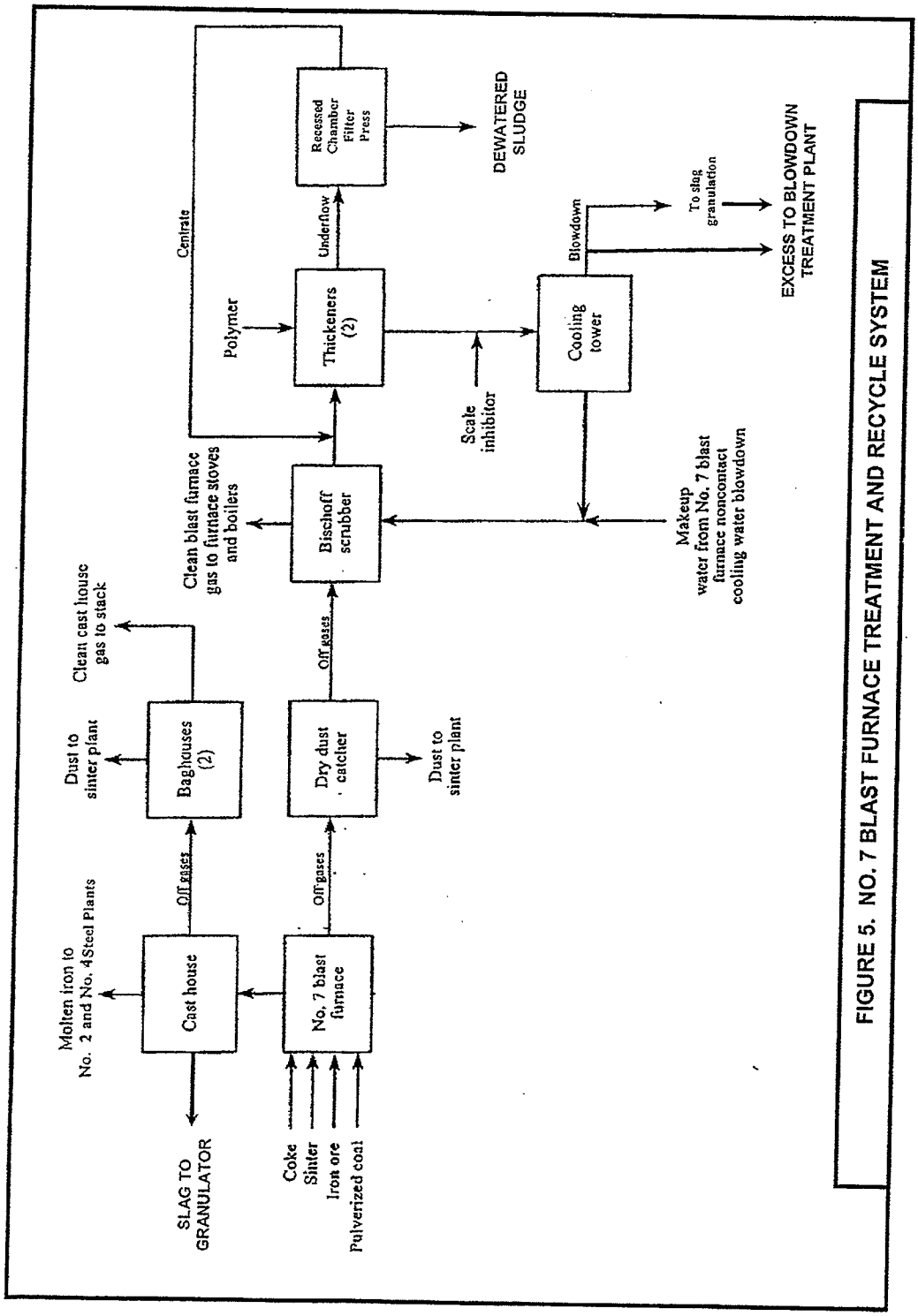


FIGURE 5. NO. 7 BLAST FURNACE TREATMENT AND RECYCLE SYSTEM

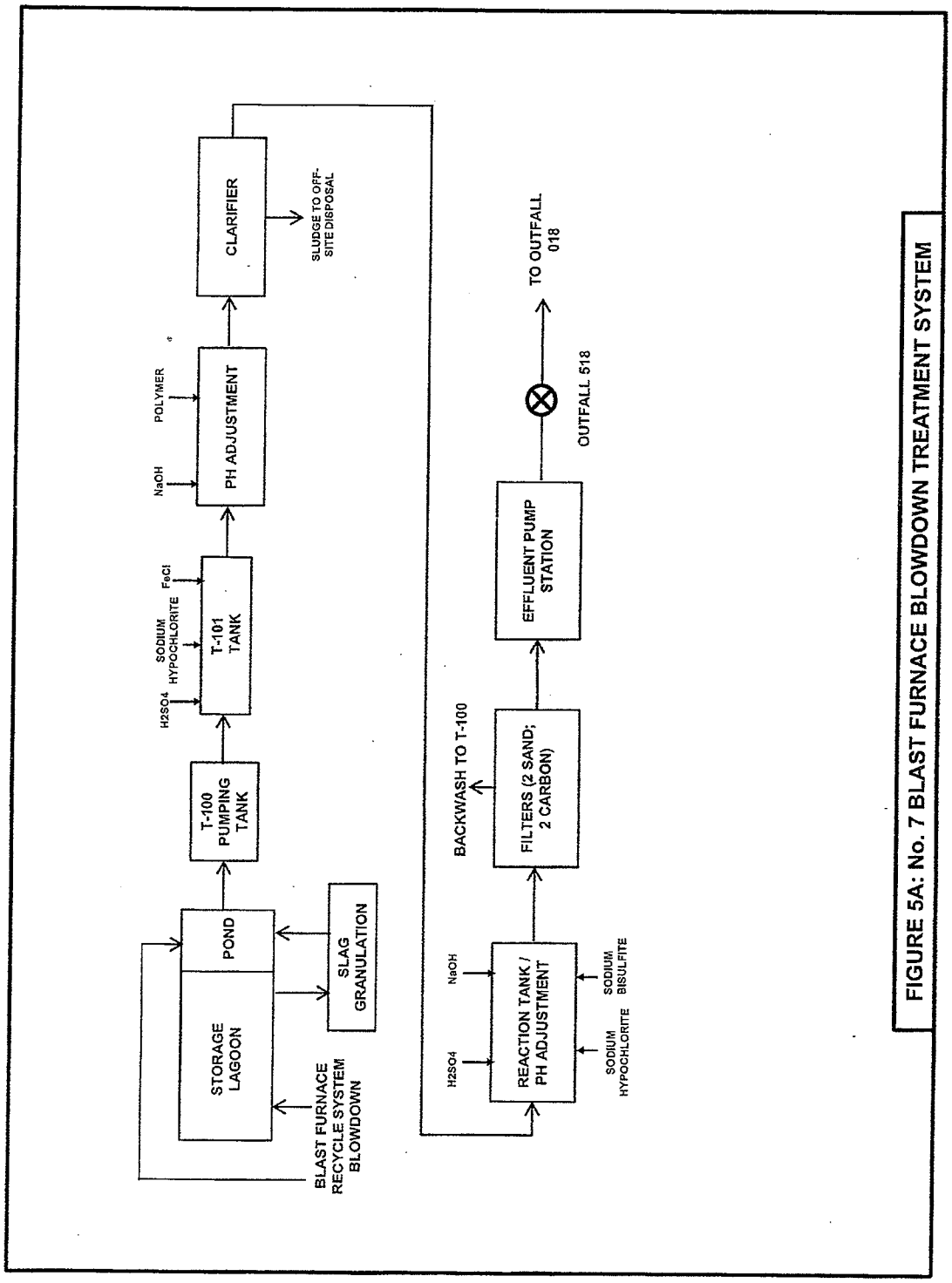


FIGURE 5A: No. 7 BLAST FURNACE BLOWDOWN TREATMENT SYSTEM

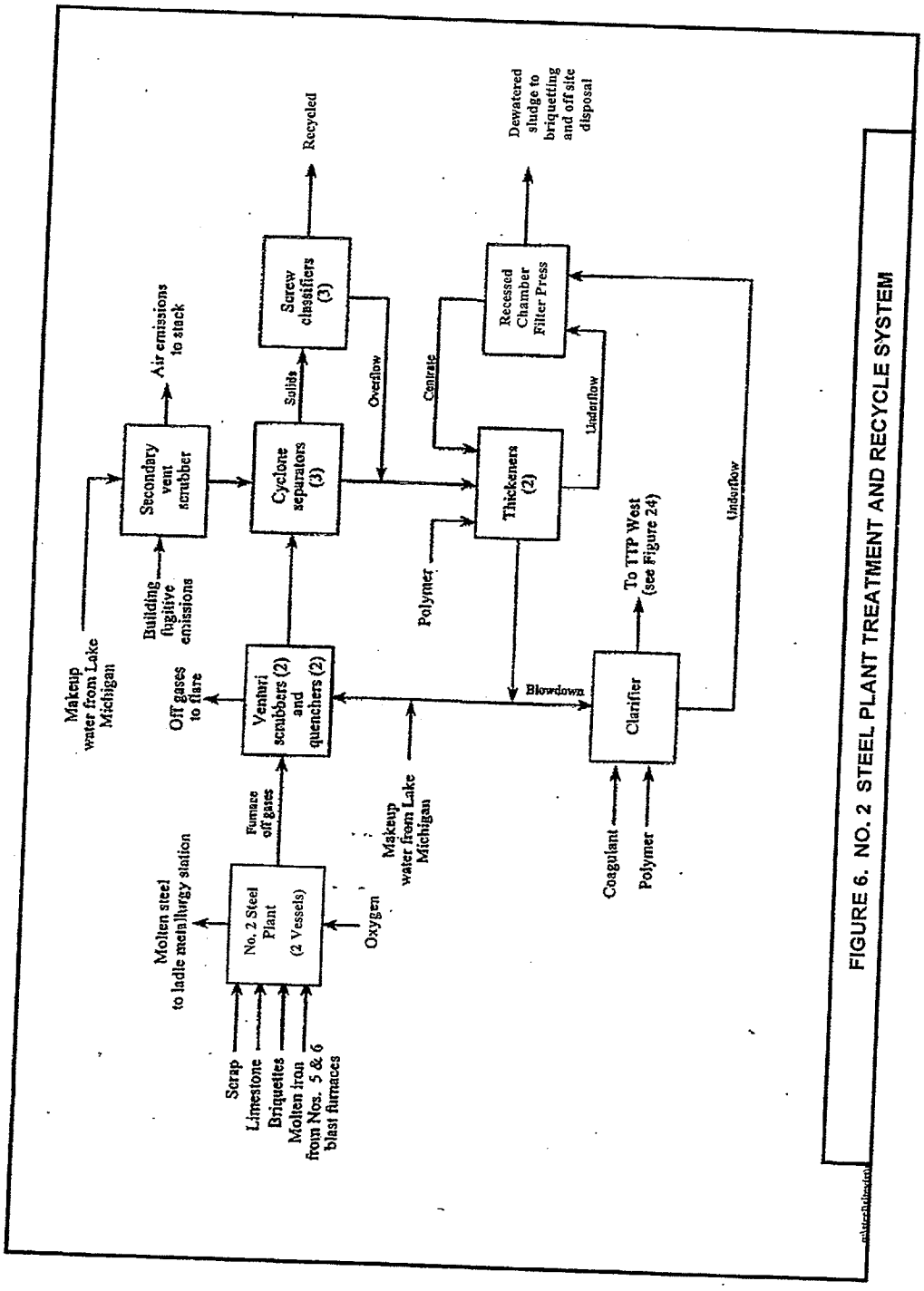


FIGURE 6. NO. 2 STEEL PLANT TREATMENT AND RECYCLE SYSTEM

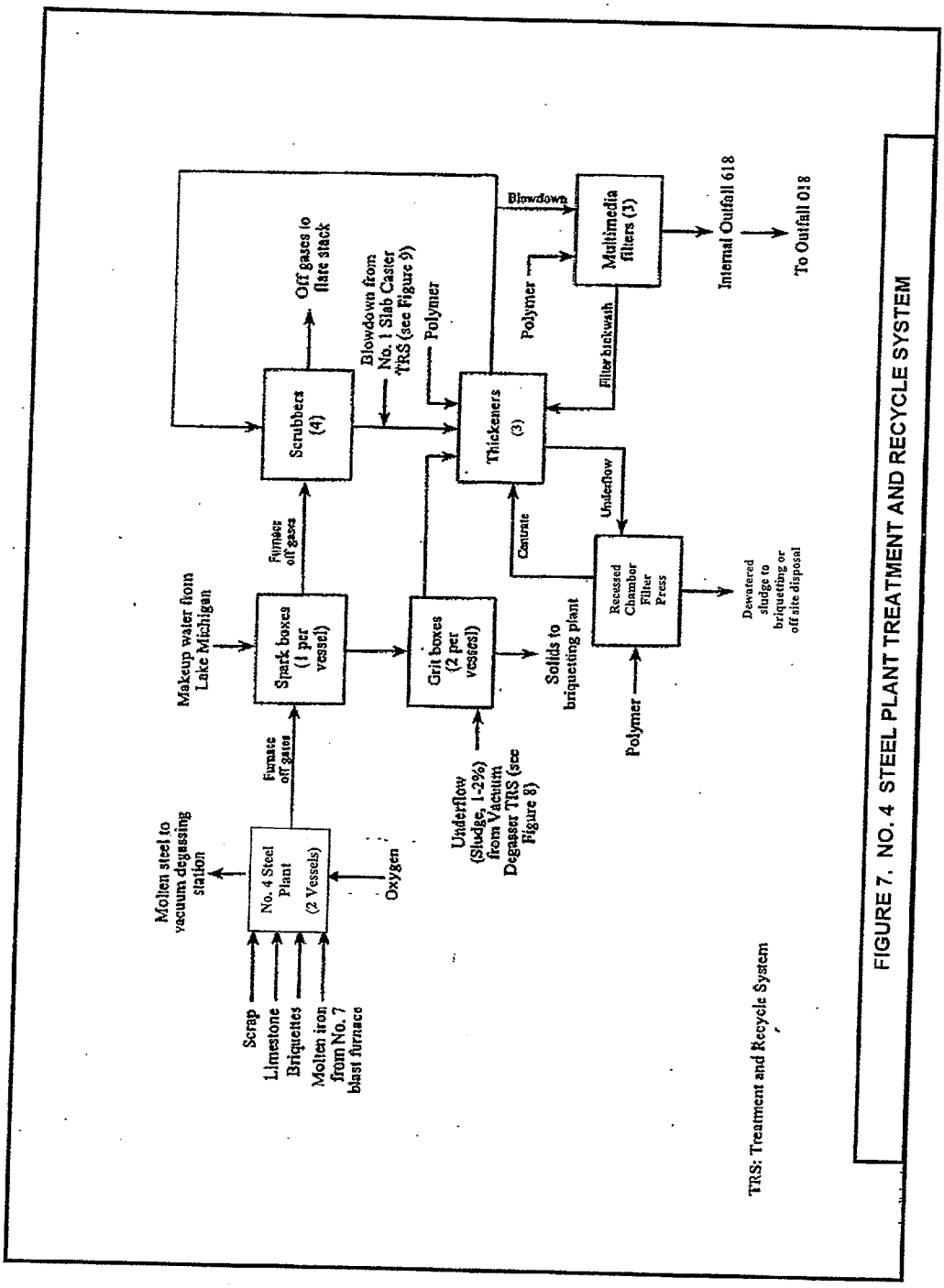


FIGURE 7. NO. 4 STEEL PLANT TREATMENT AND RECYCLE SYSTEM

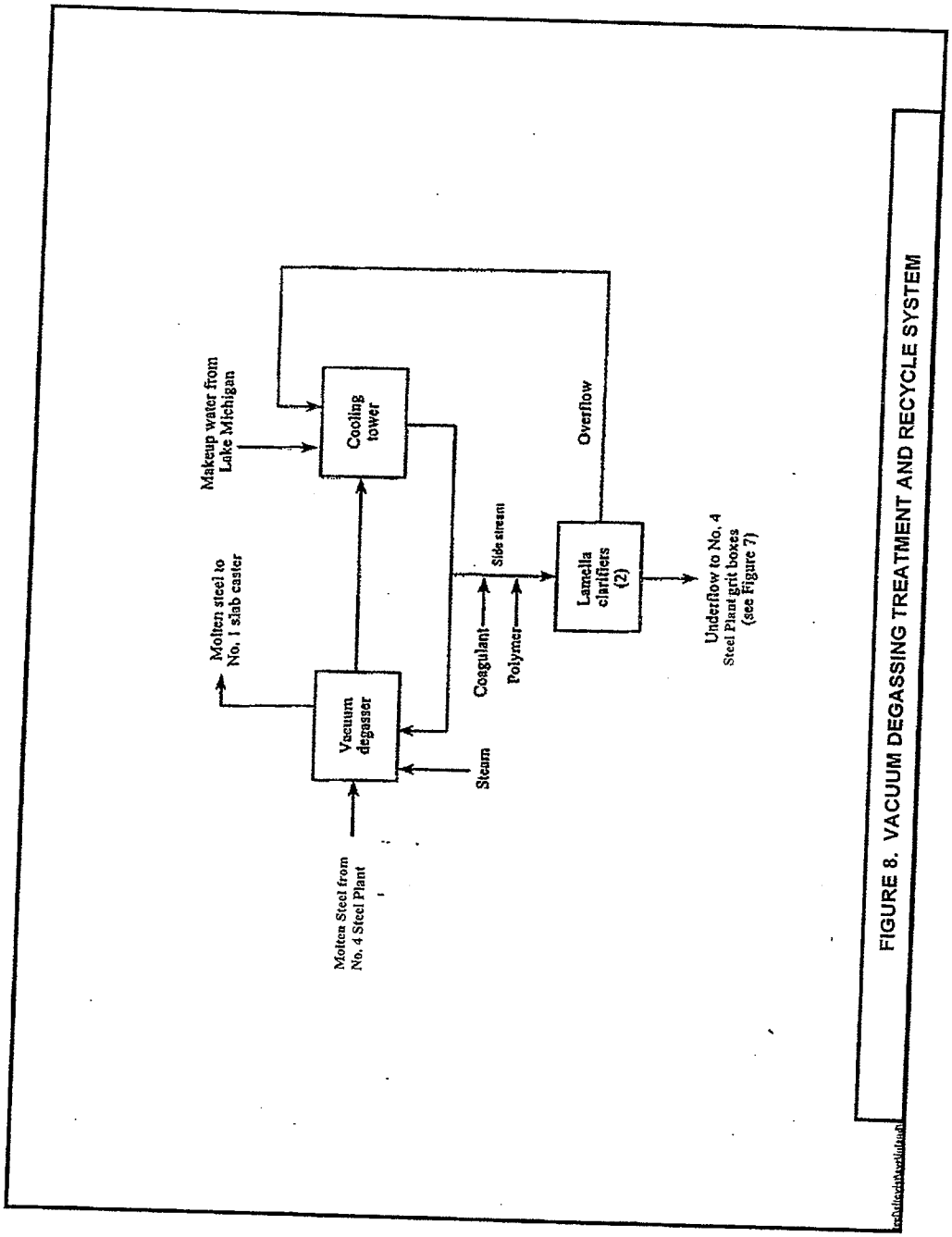


FIGURE 8. VACUUM DEGASSING TREATMENT AND RECYCLE SYSTEM

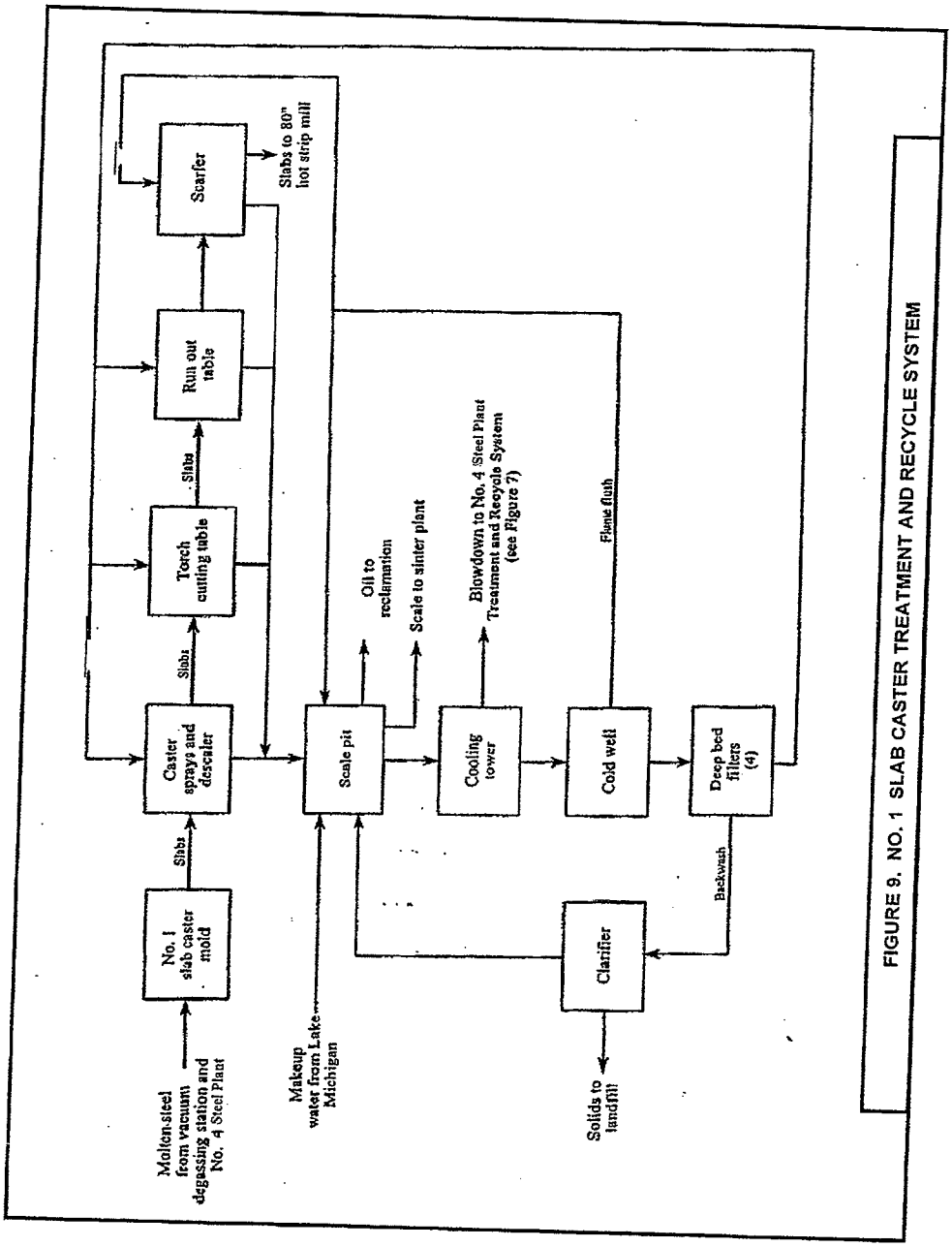


FIGURE 9. NO. 1 SLAB CASTER TREATMENT AND RECYCLE SYSTEM

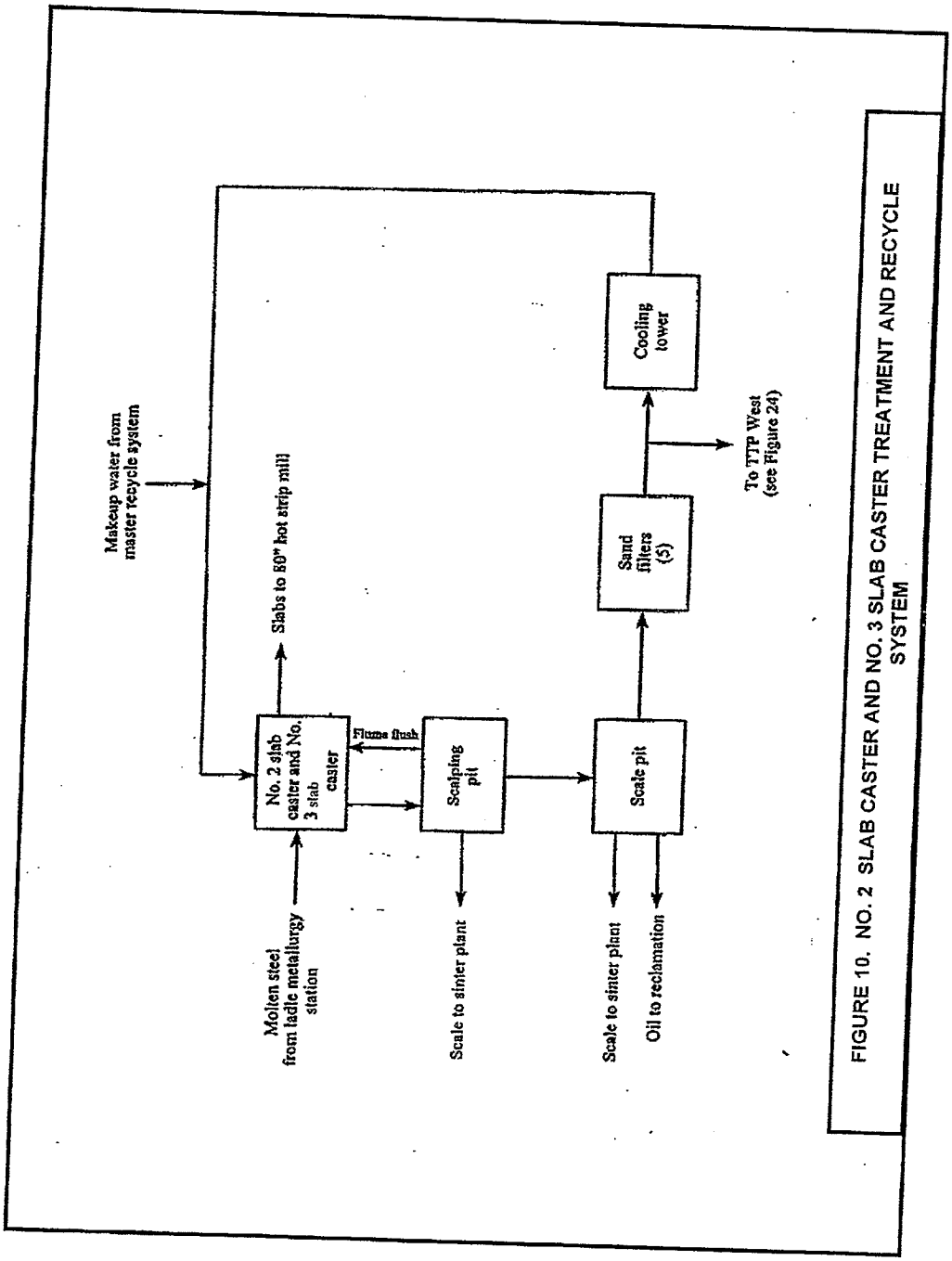


FIGURE 10. NO. 2 SLAB CASTER AND NO. 3 SLAB CASTER TREATMENT AND RECYCLE SYSTEM

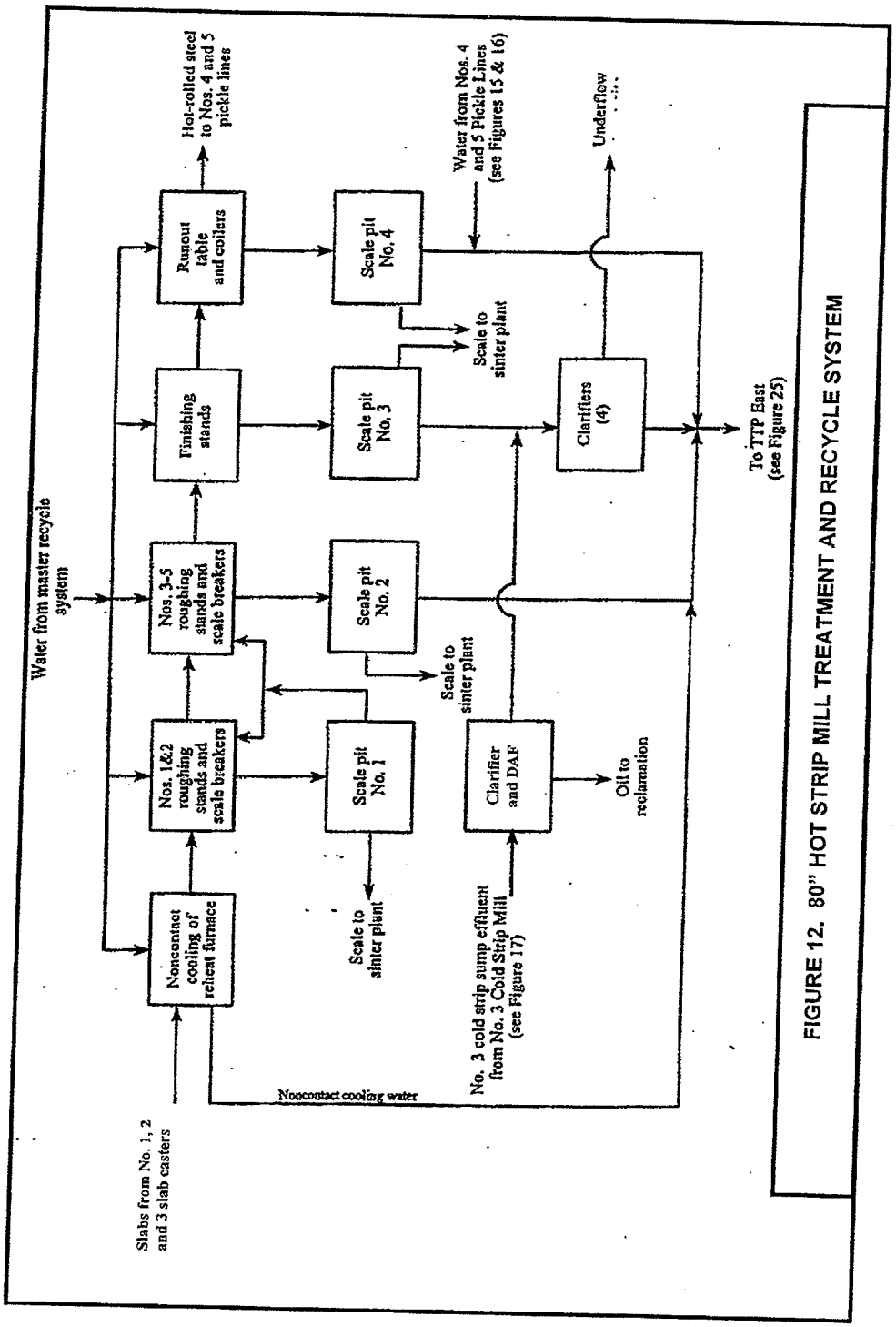


FIGURE 12. 80" HOT STRIP MILL TREATMENT AND RECYCLE SYSTEM

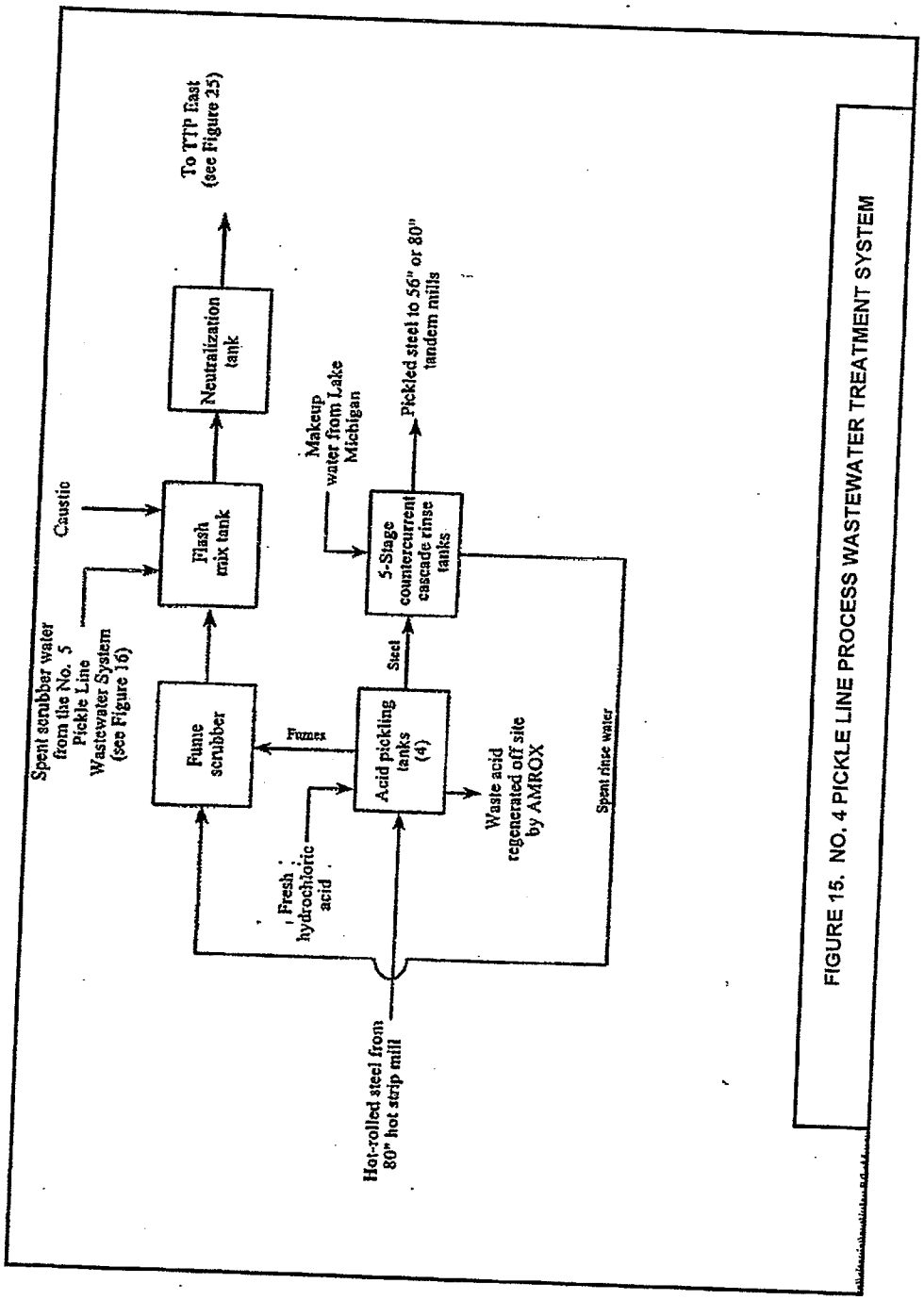


FIGURE 15. NO. 4 PICKLE LINE PROCESS WASTEWATER TREATMENT SYSTEM

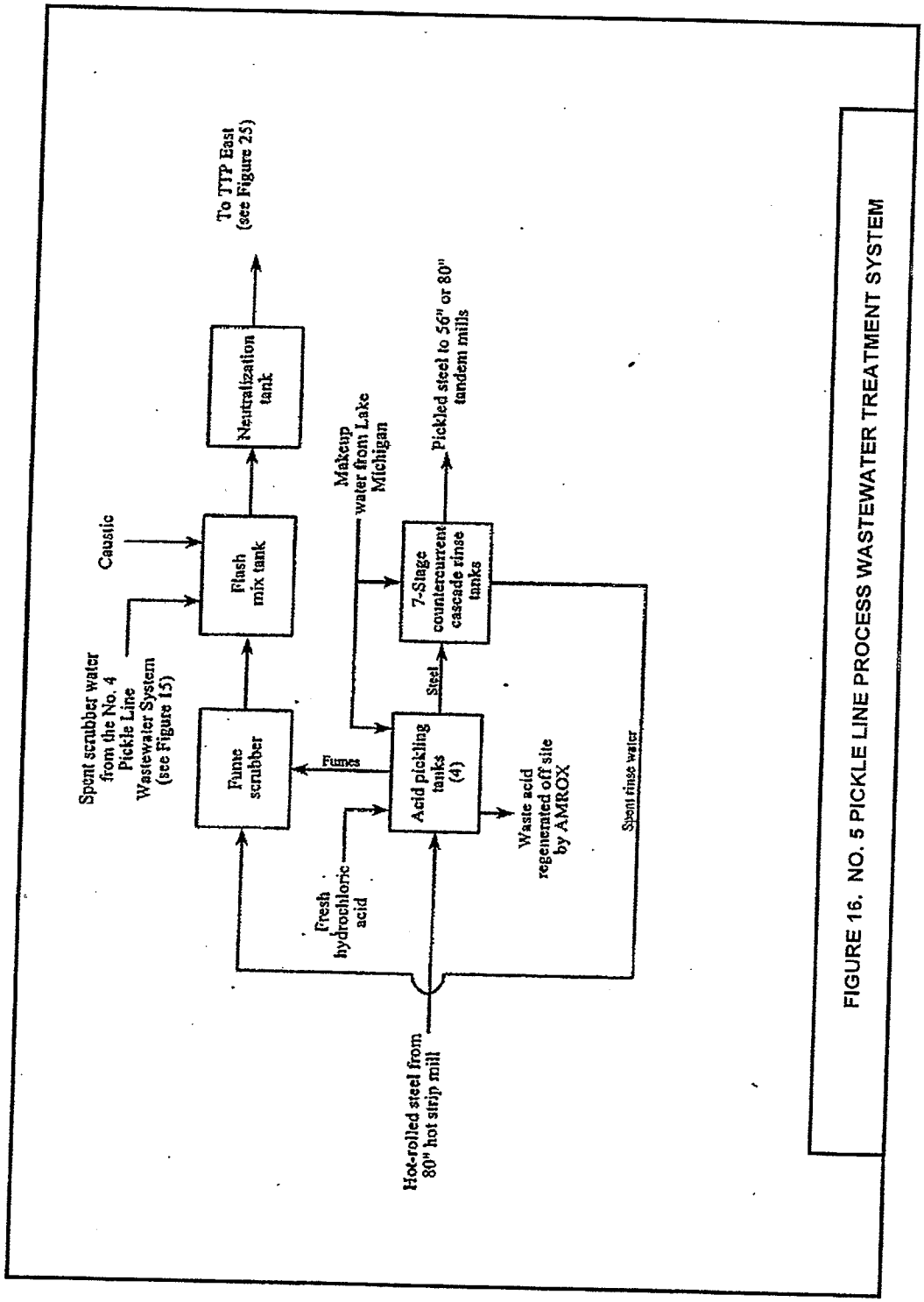


FIGURE 16. NO. 5 PICKLE LINE PROCESS WASTEWATER TREATMENT SYSTEM

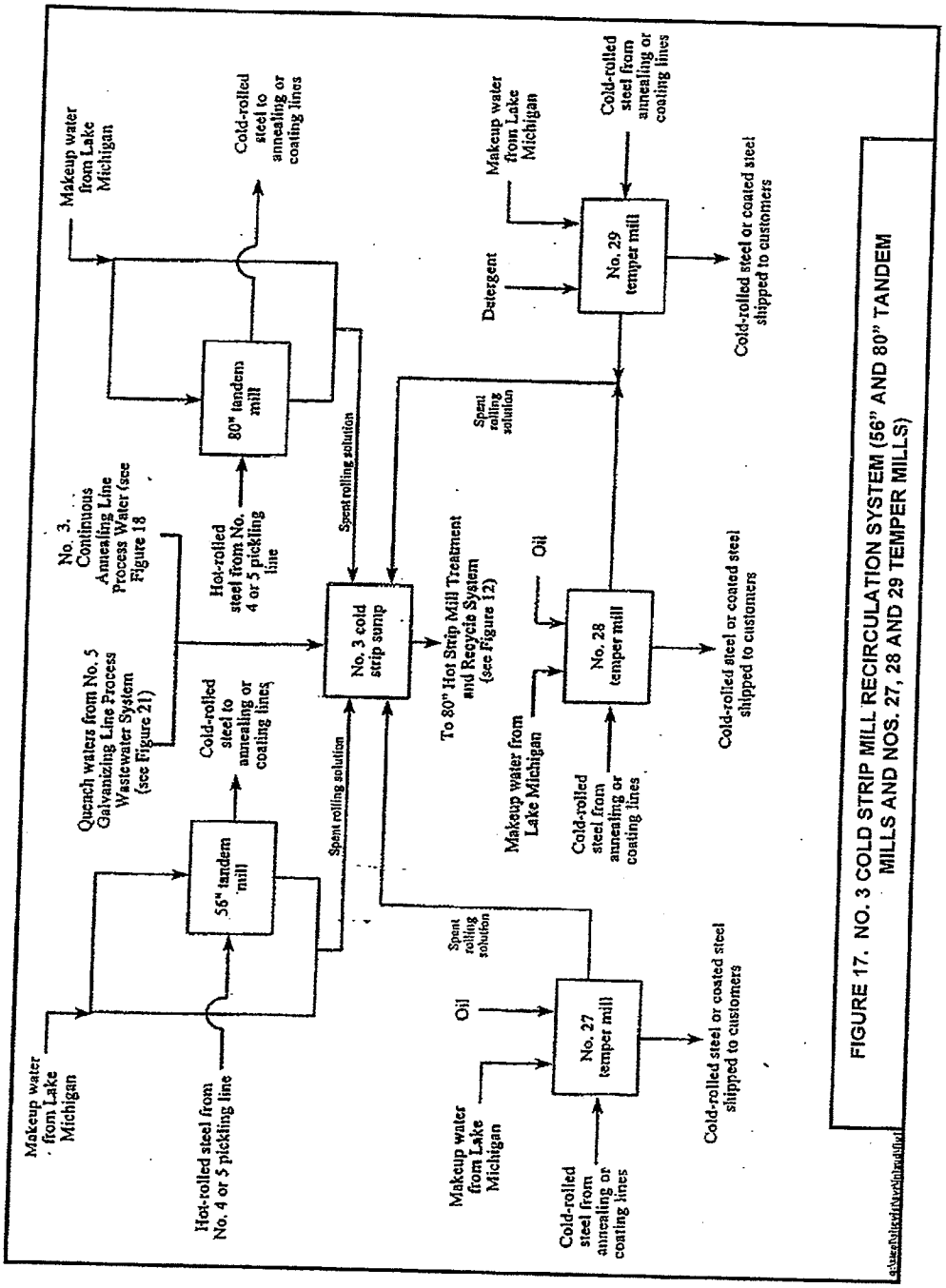


FIGURE 17. NO. 3 COLD STRIP MILL RECIRCULATION SYSTEM (56" AND 80" TANDEM MILLS AND NOS. 27, 28 AND 29 TEMPER MILLS)

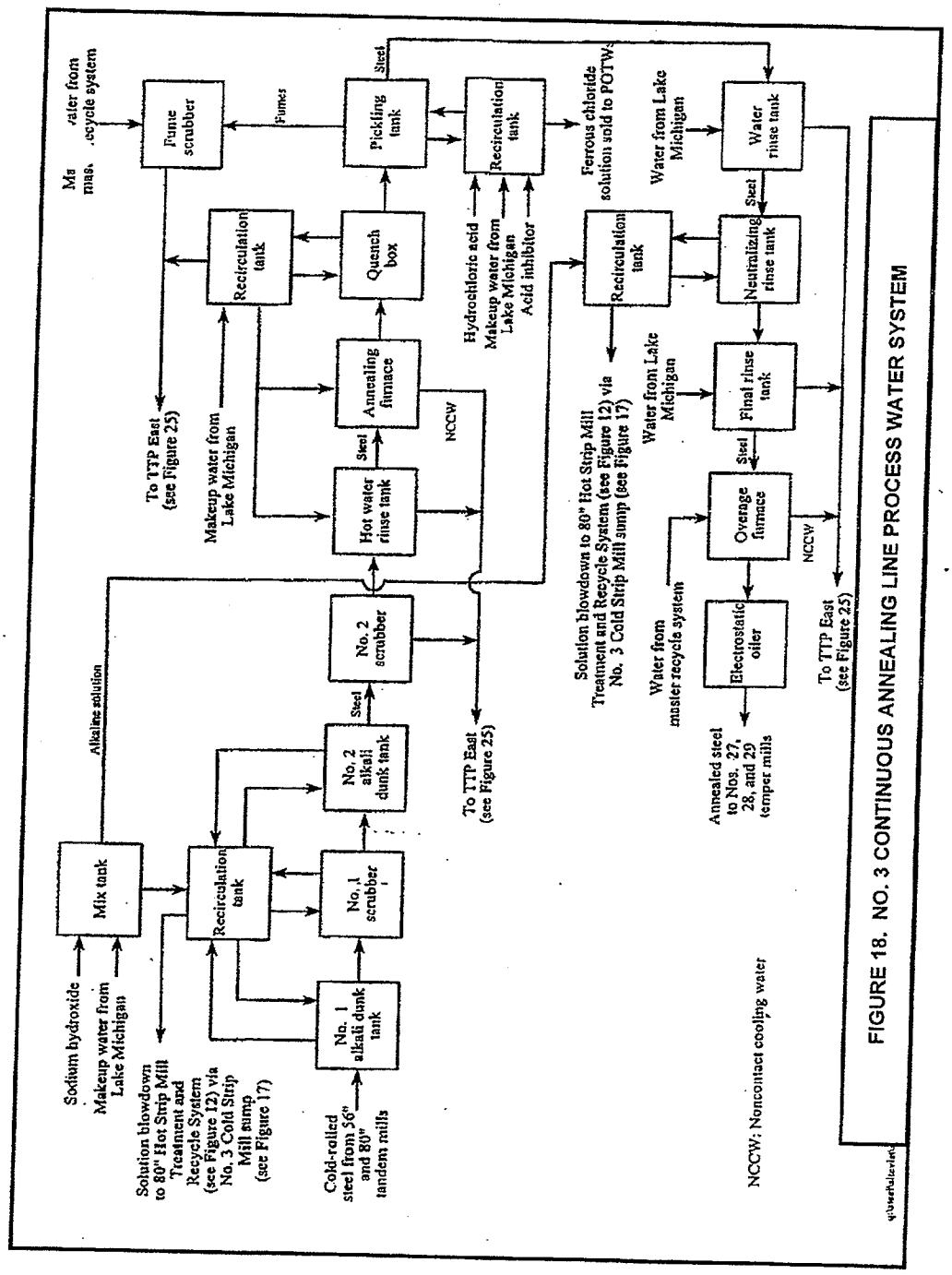


FIGURE 18. NO. 3 CONTINUOUS ANNEALING LINE PROCESS WATER SYSTEM

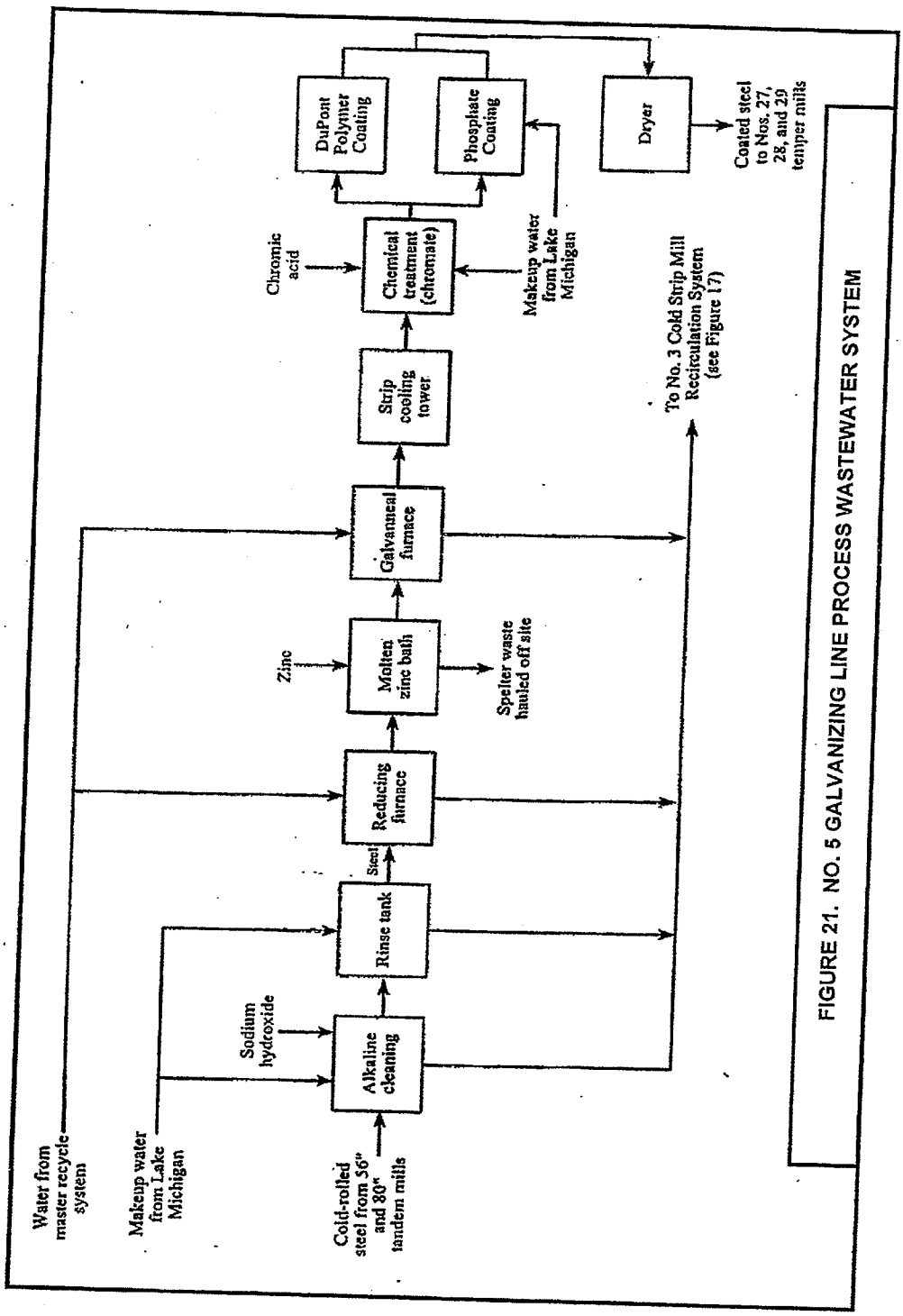


FIGURE 21. NO. 5 GALVANIZING LINE PROCESS WASTEWATER SYSTEM

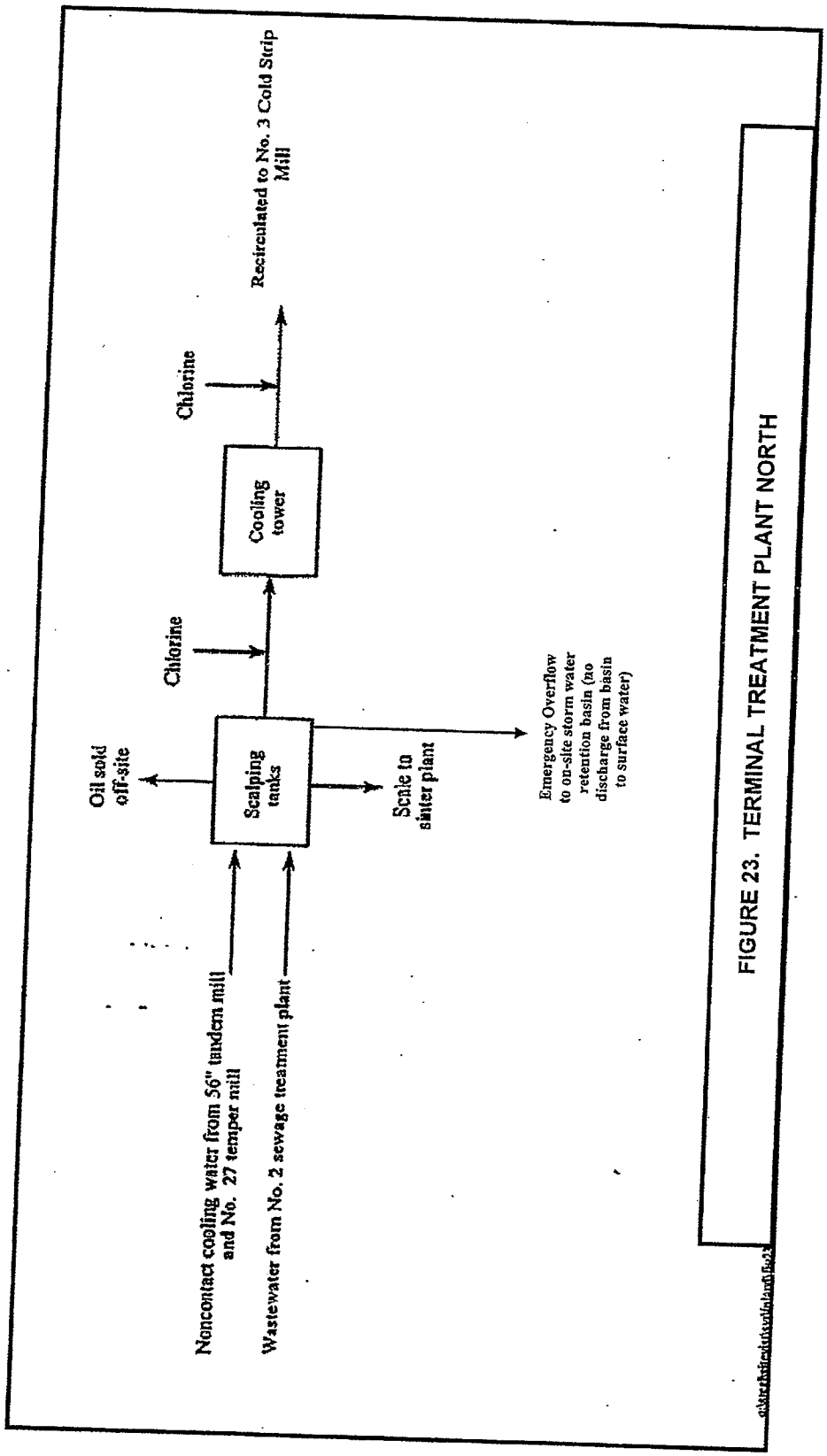


FIGURE 23. TERMINAL TREATMENT PLANT NORTH

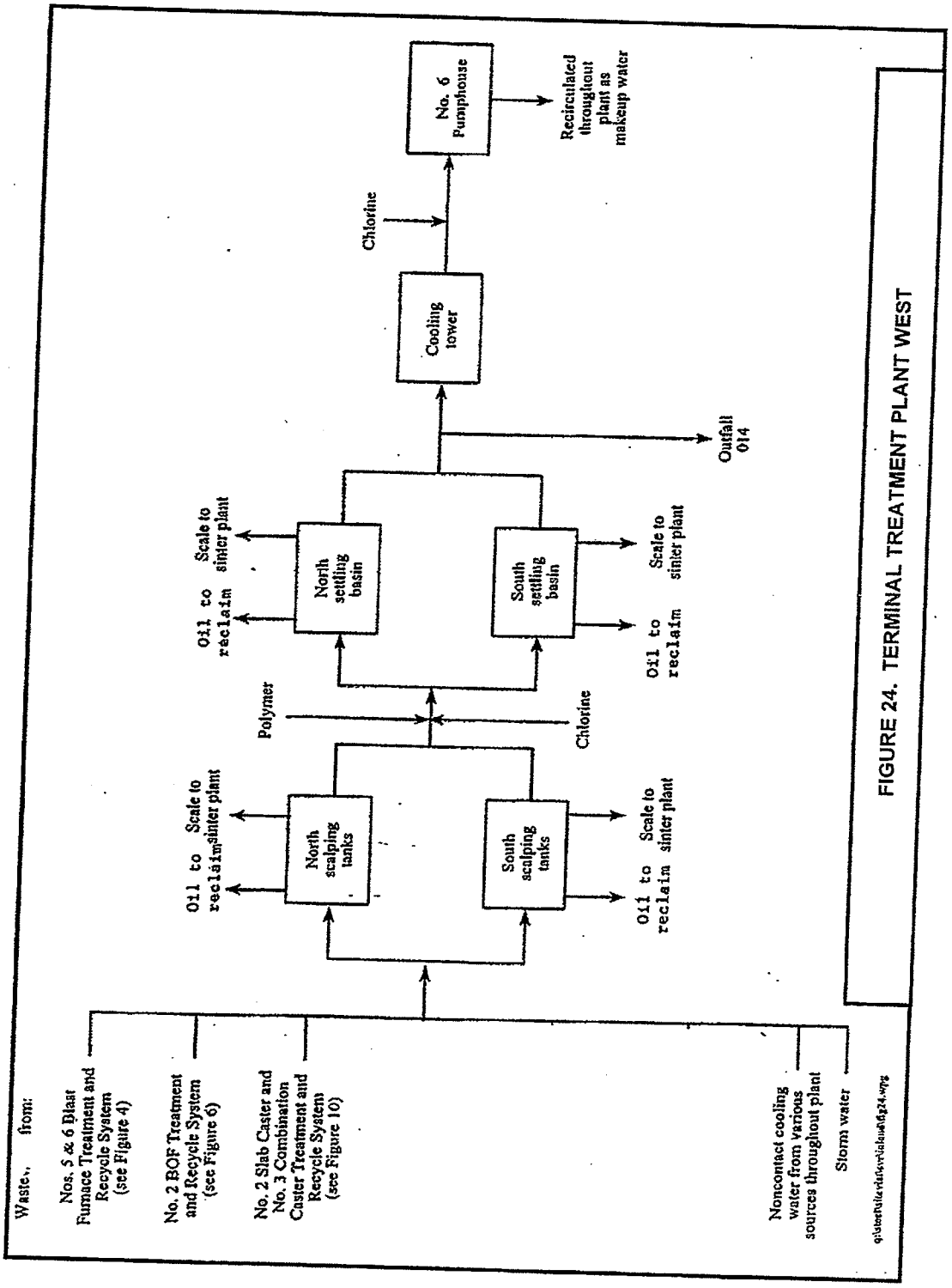


FIGURE 24. TERMINAL TREATMENT PLANT WEST

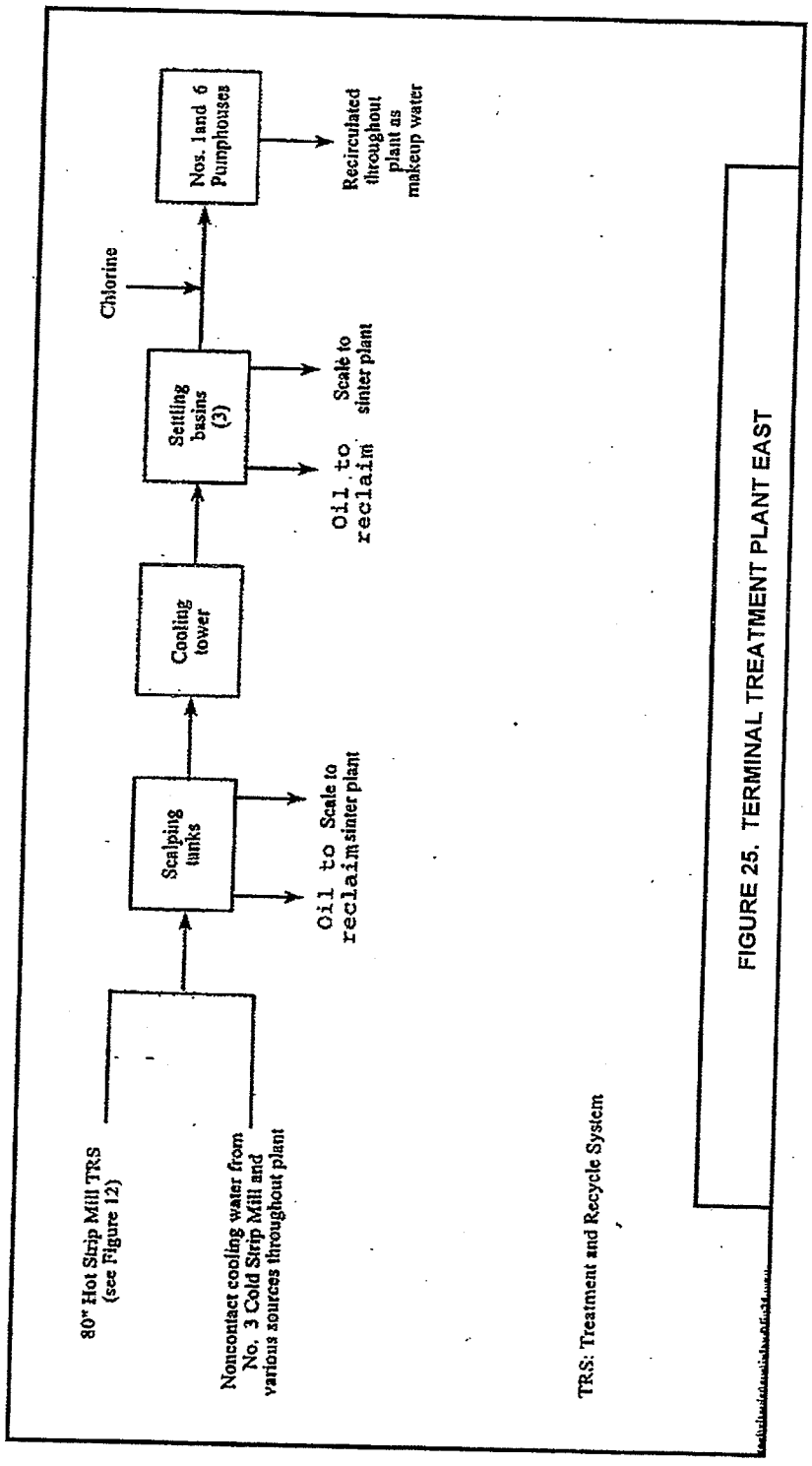


FIGURE 25. TERMINAL TREATMENT PLANT EAST

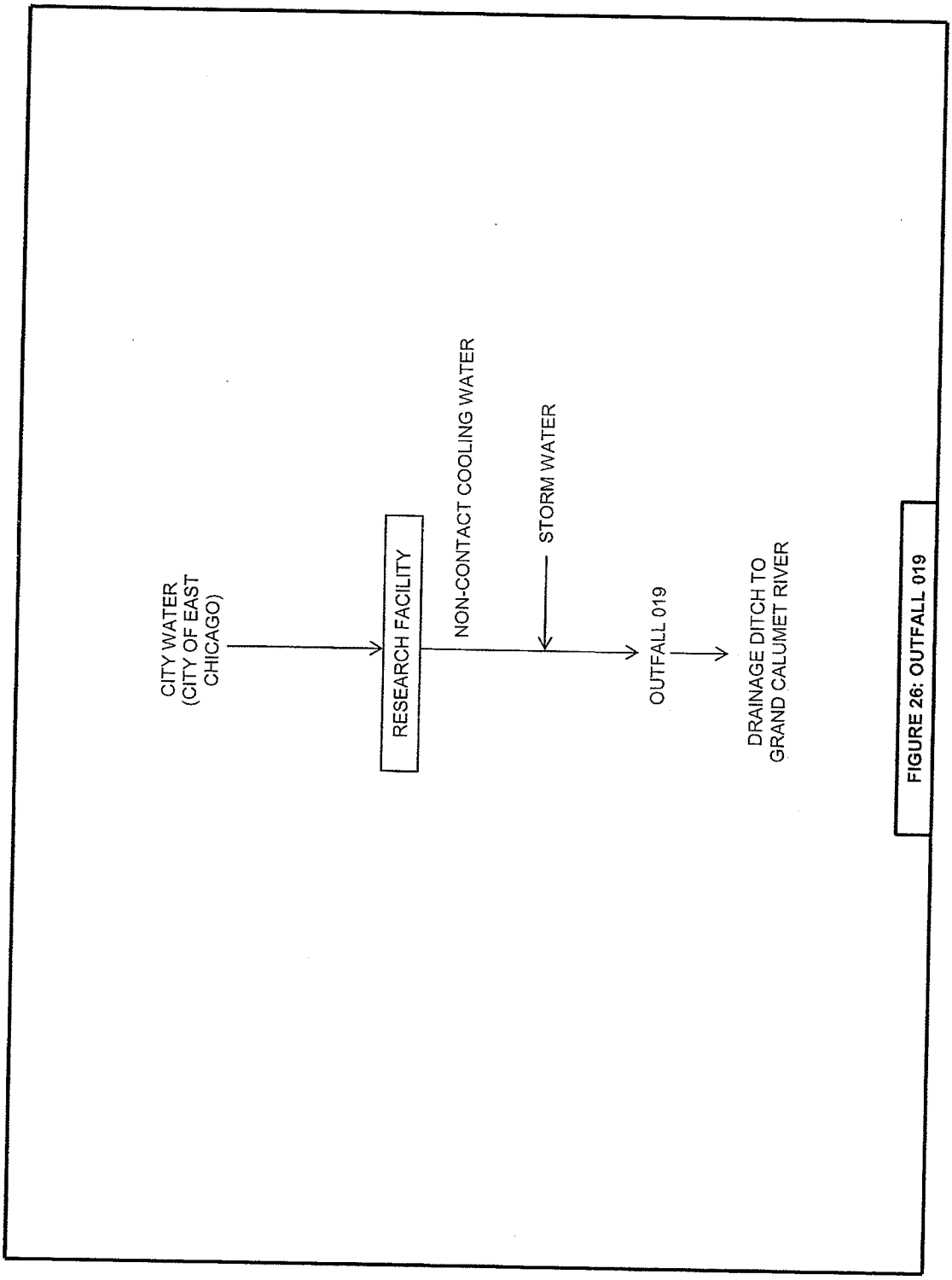


FIGURE 26: OUTFALL 019

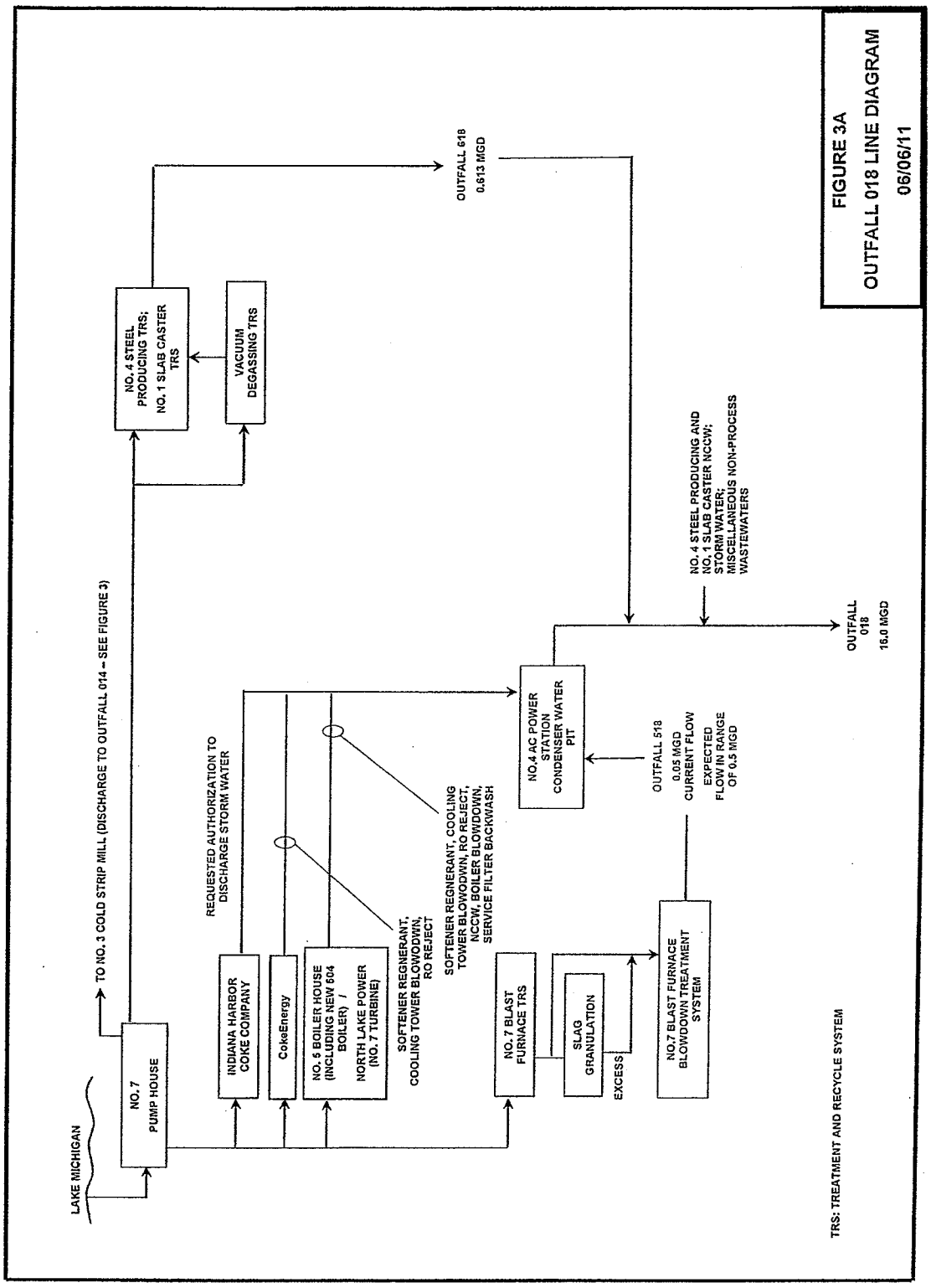


FIGURE 3A
OUTFALL 018 LINE DIAGRAM
06/06/11
LAKE MICHIGAN
NO. 7 PUMP HOUSE
TO NO. 3 COLD STRIP MILL (DISCHARGE TO OUTFALL 014 – SEE FIGURE 3)
NO. 4 STEEL PRODUCING TRS; NO. 1 SLAB CASTER TRS
VACUUM DEGASSING TRS
OUTFALL 618
0.613 MGD
REQUESTED AUTHORIZATION TO DISCHARGE STORM WATER
INDIANA HARBOR COKE COMPANY
CokeEnergy
NO. 5 BOILER HOUSE (INCLUDING NEW 604 BOILER) / NORTH LAKE POWER (NO. 7 TURBINE)
SOFTENER REGNERANT, COOLING TOWER BLOWDOWN, RO REJECT
SOFTENER REGNERANT, COOLING TOWER BLOWDOWN, RO REJECT, NCCW, BOILER BLOWDOWN, SERVICE FILTER BACKWASH
NO. 7 BLAST FURNACE TRS
SLAG GRANULATION
EXCESS
NO.7 BLAST FURNACE BLOWDOWN TREATMENT SYSTEM
NO.4 AC POWER STATION CONDENSER WATER PIT
OUTFALL 518
0.05 MGD
CURRENT FLOW
EXPECTED FLOW IN RANGE OF 0.5 MGD
NO. 4 STEEL PRODUCING AND NO. 1 SLAB CASTER NCCW; STORM WATER; MISCELLANEOUS NON-PROCESS WASTEWATERS
OUTFALL 018
16.0 MGD
TRS: TREATMENT AND RECYCLE SYSTEM